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EDITORIAL NOTES.

THE STATE BOARD OF HEALTH

It is difficult to measure the good which an energetic campaign along any line of preventive medicine may accomplish. Once the public is aroused against the spread of tuberculosis or the eradication of plague, its interest does not stop here; to start the ball rolling is the hardest thing of all, but when it is fairly on its way it moves with a momentum all its own and the directing hand only is needed. This is particularly exemplified in the many calls which are being made upon the State Board of Health from every quarter. There is already a strong tendency to submit to expert opinion questions of sanitation as they affect the individual community. This must be a source of great satisfaction to Dr. Martin Regensburger, who has long been president of the board, and the late secretary, Dr. N. K. Foster, for they have labored indefatigably for this result.

A large number of the inquiries which are daily received pertain to the simplest matters and have emphasized the fact that the education of the public, not only in the necessity of sanitation, but in the principles of the science as well, is absolutely essential. This work the present secretary, Dr. William F. Snow, has launched and he has started at the very foundation. A large part of his time is now being spent in first interesting the teachers in our public schools, and, secondly, in their instruction in the elements of the subject. From the public schools the campaign will be carried to municipal bodies, large corporations, chambers of commerce and all those factors which are potent in shaping the public destiny. The way has been prepared for such work and the time is now ripe for its accomplishment. In the past boards of health have been compelled to act largely as censors, pointing out mistakes to the public after they had been committed; this position has not assisted in increasing their popularity. There is no doubt that a great number of these mistakes have arisen from ignorance and their cure is to be found in a better conception of the principles of sanitation. When town governments come to a full understanding of these principles, when corporations learn that their fulfillment is an economic investment, when boards of trade realize that the health of their community is their best card, we can expect results which will be little short of marvelous. In this work the State Board expects the help of every physician; a strong, active support, not a passive sympathy. It is often the case that the individual physician does not realize what a power he can exert in his own community and his influence is never greater than when it concerns questions of the public health.

REGISTER DIRECTORY.

For a good many years the State Society, either directly or through its members of the Board of Examiners, has published an annual directory of physicians. Before the fire the Society had a regular advertising agent who was paid a commission on the advertisements secured for the Register, the Society receiving all returns from advertising and paying all expenses of publication. In 1906, after the fire, everything was at sixes and sevens; the advertising agent, Mr. Henry Kaplan, suggested that he be allowed to publish the Register, get all he could out of the advertising, supply a copy to each member of the Society and release the Society from all financial responsibility. That proposition was accepted; it was again renewed in 1907, a regular contract being drawn between the Society and Mr. Kaplan, which was renewed in 1908 and again in 1909. Early in 1909 Mr. Kaplan requested permission to publish the Register and directory as a part of a quarterly medical journal. This was not approved by the Council and again not approved by the House of Delegates at the last annual meeting. In spite of this denial, Mr. Kaplan did just as he chose and used the quasi endorsement secured by publishing the Register as a part of the "Practitioners' Digest," to boost into circulation a medical journal owned exclusively by himself. The resulting tangle has been referred to the attorney for the Society. Please understand clearly that there is absolutely no connection between the State Society and Mr. Kaplan, nor the "Kaplan Medical Publishing Co.," which is the same thing. Hereafter the Society will, as formerly, issue its own Register and directory and each member will receive a copy next year as in previous years.

TUBERCLE BACILLI IN BLOOD.

In a paper published by Rosenberger in the early part of this year (American Journal of Medical Sciences, Feb., 1909), the somewhat startling statement is made that tubercle bacilli may be demonstrated in the systemic blood of most if not all tuberculous patients. The author based this assertion on the results of cover-slip examinations of the blood of 125 tuberculous individuals, some of which were affected with incipient forms of the disease. Not only does he claim to have demonstrated their presence in most of the cases examined but states that the tubercle bacilli were present "mostly in large numbers and clumps of 30 to 40 bacilli were not unusual, especially in cases of acute miliary tuberculosis." Astounding and incredible as these observations appear, especially in view of the contrary experience of older investigators who have gone over the ground with a technique not greatly differing from that employed by Rosenberger, his conclusions have been uncritically accepted and used by a group of writers to further their own immatured arguments.

That tubercle bacilli occasionally float in the general blood stream has long been known. The occurrence of secondary tuberculous lesions in regions remote from the original focus of infection, and a widespread scattering of tubercles of approximately if not precisely the same age and stage of development, has usually been explained on the grounds of systemic blood invasion, but, heretofore no reliable observer has contended that the ordinary clinical forms of tuberculosis are to be regarded as bacteraemias in the usual sense of that term, notwithstanding Rosenberger's contention to the contrary. Since the publication of his paper the results of several studies on this subject have appeared, which not only disprove the correctness of the Philadelphian's observations, but show more than ever before that there is no valid reason for changing our views on this matter.

Schroeder and Cotton (Archives of Internal Medicine, August 15th, 1909), and Ravenel and Smith (Jour. Amer. Med. Assoc., August 21st, 1909), have recently restudied the question with results fully in accord with previous experience. The first named observers from an investigation, by the microscopic method as employed by Rosenberger, of the blood of 42 tuberculous cattle, mild and severe forms of the disease, not only failed to find tubercle bacilli, but guinea pig inoculations likewise were negative. Investigating the subject from the human side Revenel and Smith also reached the same conclusion. Unusually interesting in connection with the work of Rosenberger is the paper just published by Brem (Jour. Amer. Med. Assoc., Sept. 18th, 1909), on the contamination of water, even distilled water, with acid-fast bacilli having the morphological characteristics of the tubercle bacillus. In the light of these observations it is quite possible that here we may find an explanation of the extraordinary results of Rosenberger's work. However that may be, it is obvious that his method is valueless so far as its employment for diagnostic purposes is concerned.

EXPLANATION AND THANKS.

Since July the editor has been unable to do any work on the JOURNAL. In that month he met with an accident which resulted in a fractured skull and strict orders not to attempt to do any work for at least two or three months. As he has led a rather active—if not at times strenuous—life for some years, this enforced idleness was decidedly irksome. Nevertheless, it was quite evident that nature would enforce the orders of the surgeons, and so he has not attempted to do very much. But misfortune is not always unmixed with compensations. Friends appeared at once, and they were of the real sort. The publication committee, largely through the very kindly offices of Dr. Lartigau, took entire charge of the JOURNAL and they have done everything in the matter of preparing copy, editorials, etc., and seeing that the JOURNAL was properly made up each month. To these gentlemen the editor wishes to extend his most sincere thanks and appreciation for their generous work and for their active friendship in running and in improving the JOURNAL. Many excellent changes and improvements have been made under their direction, and it is with a feeling of great relief that the editor realizes that the JOURNAL is in and will remain in such good hands until such time as he can once more take over the major portion of the work. It is indeed good to realize that, at the crucial moment, one has such stanch friends.

EARLY DIAGNOSIS OF PERTUSSIS.

The importance, especially from the standpoint of preventive medicine, of establishing the diagnosis of pertussis in the early period of the disease before the characteristic 'whoop' appears has been universally recognized, but the means by which this may be accomplished has been much less clear. In

the absence of distinctive bedside manifestations in the catarrhal stage clinicians naturally turned to the laboratory for assistance and to bacteriology particularly did they look for interesting revelations of a practical nature similar to those brought forward as a result of researches on tuberculosis, diphtheria, and other specific infectious diseases. The earlier investigations along these lines by Spengler, Jochmann and Krause, and others were interesting but inconclusive; on the other hand the work of Berdet and Gengou published in 1906 is more significant but as will be seen has not yet yielded results which may readily and easily be applied to ordinary practical medicine. As is well known these observers found a short, oval, Gram-negative bacillus in the bronchial exudate from early as well as late cases of pertussis. They were able to cultivate the organism on a special medium consisting of 1 per cent glycerin agar or broth made with macerated potato and added to an equal volume of human or rabbit blood. Cover-slip examinations are, however, so unreliable and the cultural verification necessitates so much purely technical manipulation that it is very questionable if these results of their study will be utilized under ordinary circumstances. Another course suggested by the research of Bodet and Gengou lies in the use of serum reactions for they have shown that the serum of convalescents from pertussis contains substances but this deviation of complement reaction likewise presents difficulties not easily overcome by the clinician although we hope that municipal laboratories will in the near future make their services available to the practitioner for diseases the diagnosis of which involves procedures of this kind.

Although the bacteriological criterion should and will eventually be employed in routine work for the early diagnosis of pertussis it is obvious that the majority of practitioners will look for this purpose to some more facile even if not so accurate a method. It is therefore likely that most of them will follow with greater interest the results of ordinary morphological blood examinations in their diagnostic applications to this disease. It is interesting that more than ten years ago Frohlich called attention to certain changes in the blood which are now the subject of more extended study in this connection. These alterations in the cellular content of the blood have also been investigated by De Amici and Pacchioni, Muggia and Bertoletti Crombie, and more recently by two American observers, Barach (Arch. of Internal Medicine, July 15, 1908) and Kelmer (Ibid. July 15, 1909).

From a review of their work it is evident that there is a slight leucocytosis and an absolute increased percentage of all the forms in the catarrhal stage and, indeed, to some extent, according to Kelmer, even in the precatarrhal period. The number of leucocytes steadily increases in the catarrhal stage reaching the climax in the paroxysmal, after which they gradually fall in number until the normal is attained. The lymphocytosis upon which emphasis is laid begins very early but only becomes decided in the catarrhal phase and marked in the paroxysmal stage, after which a decline is noted. The increased percentage of lymphocytes is absolute and not simply relative as is frequently found in rickets. The percentage of polymorphonuclears is in most instances actually increased but relatively they decrease as the lymphocytes go up while the eosinophiles which are usually present in normal proportions in the catarrhal period show a relative decrease in the paroxysmal after which time a mild eosinophilia sets in.

It would therefore seem that in the presence of a mild catarrhal bronchitis associated with a leucocytosis and lymphocytosis with decreasing polymorphonuclears and rising lymphocytes we may reasonably suspect if not actually diagnose pertussis. While the number of investigations covering these points is yet small it is noteworthy that all observers arrived at the same general conclusions.

THE EXTENT OF SQUIRREL PLAGUE.

Last month the JOURNAL commented upon the prevalence of plague among the ground squirrels of Contra Costa and Alameda Counties and the efforts which were being made by Dr. W. C. Rucker, of the Public Health and Marine Hospital Service, and his small corps of assistants to eradicate it. Practically all parts of this territory are infected and work has just been started in Stanislaus and San Benito Counties, where a number of plague squirrels have already been reported. About one per cent of all squirrels examined at the laboratory are infected. Dr. McCoy, who has charge of this work, believes that the disease has existed in these regions for a long period. It is problematical just how far down the coast the infection extends, although it may be added that plague squirrels have been found in all counties in which an extensive search has been made. The eradication of the disease presents one of the most serious problems which has thus far engaged the attention of our sanitary officers.

ORIGINAL ARTICLES

THE DIAGNOSIS AND TREATMENT OF URETERAL CALCULUS.*

By R. L. RIGDON, M. D., San Francisco.

The making of a diagnosis of ureteral disorders resembles in some respects the children's game of putting together the dismembered parts of a picture. Various combinations of the parts may be made that seem almost right, but still some feature of dress or figure is not filled in, or some extra part remains, and a little more study and a little more patience are needed before the correct assemblage has been obtained. So in our diagnostic problems various interpretations of symptoms and findings may be made that are in a measure satisfying but if we would be wholly correct in our conclusions much time, much patience and much readjusting may be necessary.

It has seemed to me that the real object of our meeting to-night—free discussion—could be best encouraged by the presentation of illustrative cases to which are appended a few remarks touching points of interest.

Case No. 1: Mr. R., age 24. On April 8th, 1908, he was suddenly attacked with very severe, non-radiating pain in the left loin which was only controlled after four or five hours by hypodermic injections of morphin. There was no dysuria, no pollakiuria, no hematuria. Since the onset there has been a constant, heavy, dull pain in the loin with acute exacerbations. Last night for the first time the pain was radiating in character, running down to the left testicle; this was not severe and lasted only a few minutes. The testicle was not retracted. Slight frequency of urination and a little pain with the act was also noted.

P. C.—Well nourished, medium build, lungs and heart normal. Palpation of abdomen shows left kidney tender, not palpable, tenderness extends along the course of the ureter to below the level of the umbilicus. Urine semi-transparent. Microscope shows few blood cells. No casts. Cystoscope reveals normal bladder mucosa, ureteral orifices normal, catheter into left ureter advanced about three inches but could not be passed beyond. Patient was returned to bed and kept under observation and treatment for a week. During this time the pain and tenderness were constant and there had been several attacks of ureteral colic.

April 21st: Cystoscope again used. Catheter carrying steel wire was introduced into ureter for two inches but could be advanced no further. Radiogram was taken with cystoscope and styleted catheter in place. When the plate was developed it showed a beautiful stone shadow in ureter with stylet leading up to it. The shadow showed the stone to be a small one and it seemed best to wait until nature could have time to effect its expulsion if possible; but after another week of suffering operation was decided upon. This was done on April 27th. Dr. Burroughs assisting. The extra-peritoneal route was followed and the stone was located at the bladder wall. It was removed with much difficulty through a small slit in the ureter. The ureter was sutured with catgut and the external wound closed except for a small cigarette drain which led down to the ureteral wound. Recovery was uneventful. There was practically no leakage from the ureteral wound.

The diagnosis of this case was perfectly simple and presented no difficulties, the last positive evidence being furnished by the X-ray and ureteral catheter. The removal of the stone presented considerable difficulty owing to its impacted condition in the ureteral mucous membrane and its location so low down in the ureter. In another operation in a similar case I think I should follow the technic of Gibbon and attempt to displace the stone upward by means of a finger introduced into the abdominal cavity through a small slit in the peritoneum. This operator and others testify to the great advantage of the peritoneal opening. The finger within the cavity can readily locate the stone and bring it up into the extraperitoneal wound where it can be more easily removed. By exercising a little care soiling of the peritoneal cavity is avoided. Probably a better procedure than any cutting operation would have been an attempt to dislodge the stone by the injection of liquid vaseline or oil into the ureter through a catheter.

Case No. 2: F. D., male, age 30. Gives history dating back ten years, of pain beginning in back and gradually approaching bladder. Hematuria began three years ago. No pollakiuria. Never passed gravel. At present pain is felt in bladder and radiates to glans penis.

P. C.—Abdominal palpation negative except for tenderness in left inguinal region. No tumor could be felt. Urine cloudy with pus and blood. Cystoscope shows bladder mucosa normal. Left ureteral orifice reddened and open. Catheter could be introduced but an inch. Right ureter normal and catheter readily entered. Urine from right ureter clear, normal. Urea 18. Urine from left ureter cloudy with pus and blood. Urea 7. X-ray shows shadow low down in left ureteral region.

Diagnosis: Ureteral calculus, impacted, in lower end of left ureter.

Operation: October 26th, 1907. Student assistants. Extraperitoneal route. Ureter freely exposed and stone located two and a half inches below pelvic brim. An incision was made in ureter two inches distal to the site of the stone and with a small scoop the calculus was brought up and extracted. Ureteral wound closed by catgut suture. Parietal wound closed except for small cigarette drain down to ureter. Recovery uninterrupted. After the operation the urine gradually cleared of pus and blood. Patient left the hospital in two weeks. To-day the patient is well and following his occupation, that of bootblack. He has had no return of urinary symptoms.

Except in the matter of frequency of urination this patient presented a rather typical picture of stone in the bladder and without the help of the cystoscope and X-ray a definite location of the

* Read before San Francisco County Medical Society, March 9th, 1909.

trouble might have been difficult, but with these aids a very positive diagnosis was possible.

Case No. 4: W. H., male, age 53. Personal history negative except for rheumatic tendency which has been present for years. Three years ago had attack of pain in right lower abdomen which was diagnosed as appendicitis. He was in bed three or four days and in a few days more had regained his health. There was no operation. Six months ago had severe attack of pain in left kidney region which extended along ureter to bladder. The site of pain gradually traveled to bladder and after a rather hard paroxysm suddenly ceased. A month later a small calculus was expelled per urethram. Three or four days ago he had a rather severe attack of pain in right iliac region which subsided in a short time under hot applications. During the night of December twenty-third the present attack began. While asleep he was suddenly awakened by a severe pain in the region of the appendix which within a half minute had become agonizing and was attended with nausea and vomiting. Hot applications were applied and after a short time the pain subsided and the patient was fairly comfortable. During the following day more or less soreness remained. On the evening of the twenty-fourth, another paroxysm occurred and I was called. The patient was a man of large frame and big abdomen. Weight, 270 pounds. He was in the midst of a typical attack of acute colic which had its center in the appendicular region. In a short time the acute symptoms subsided. Examination showed a rather diffuse tenderness over the abdomen with the point of acuity a little below McBurney's point. There was no decided tension of the muscles over this region but on deep pressure much soreness was complained of. The tenderness gradually disappeared as the kidney region was approached and no soreness or tumor or muscular tension could be made out over the liver area. There was no unusual distension of the bowel. The pain was not radiating in character, there was no bladder disturbance. Temperature was normal. At first glance the case appeared to be clearly one of appendicitis but the more it was considered the less certain was I that all the conditions could be explained upon that hypothesis. The history of having passed a ureteral calculus a few months before, the extreme suddenness of onset of the present attack, and the absence of rise of temperature after twenty-four hours of suffering made me suspect that there might be some other causal factor to be considered. Favoring the theory of appendicitis was the history of a previous attack and the location and character of the pain. In order to be in a position to operate quickly, should occasion demand, the patient was sent at once to Lane Hospital. Here he was seen in consultation by Dr. Edwards of Salinas and Doctor Rixford. The acute symptoms had subsided but the distress and tenderness remained. After carefully going over the case the best that we could say was that it might be appendicitis or an inflammation of the cecum, or it might be ureteral colic due to stone. The possibility of gallbladder involvement was thought of but was ruled out for lack of tenderness in that region. A possible beginning hernia was also considered but was negatived.

In the meantime uranalysis showed the urine free from pus or albumen but a few blood cells could be found in nearly all of the specimens. Only once during the attack was the blood reported absent. Pictures were made of the kidney and ureteral region but owing to the extreme thickness of the abdomen and the further fact that the abdominal tenderness was so great that good compression could not be obtained, the plates were not altogether satisfactory. However, a rather suspicious shadow showed toward the lower end of the right ureter. The patient remained in the hospital a week. During this time there was never any rise in temperature, all the symptoms gradually subsided and he was quite comfortable except for the tenderness which was still present, although less marked, and an indefinite sense of discomfort in the inguinal region. Two or three times there had been a little irritation in the bladder. The bowel discharges contained occasional mucus and blood. The latter was accounted for by a slight hemorrhoidal tendency that had been present for some time. After returning home he had another attack of acute pain which terminated suddenly with a sense of great relief. This pain he described as similar in character to that experienced some months before when the calculus was passed. About this time Doctor Cooper saw him in consultation and advanced the theory of colitis as being at least a possible contributing factor. Rectal examination with the sigmoidoscope showed the bowel mucosa reddened and oedematous and considerable mucus present. Palpation over the colon also elicited tenderness, at this time as marked on the left as on the right side. The first X-ray pictures not having been wholly satisfactory, a second set were made with the shadow casting catheter in the left ureter. These plates were good and revealed no calculus in the urinary tract. Since that time the abdominal tenderness has subsided and the sense of distress in the inguinal region has not returned. No calculus has yet passed per urethram.

The diagnosis is still lacking in definiteness but probably should be "Ureteral calculus together with a mucous colitis."

From a study of this case it would seem that more attention should be given to the exclusion in our differential diagnosis of a mucous colitis unattended by fever or diarrhoea. It would seem possible that the accumulation of gas in a limited section of the big bowel, might be the chief factor in the production of many symptoms resembling ureteral or bladder colic.

Case No. 5: Mrs. H. B., age 52. Has been more or less a sufferer from mild articular rheumatism. No kidney or bladder trouble until July 12th, 1908, when suddenly a desire to urinate came on with post mictional pain, no blood. Onset of bladder symptoms was not preceded by back pains or radiating pains. The desire to urinate was very frequent and was felt day and night. She was com-

pelled to rest for six weeks. Lower abdomen became very sore. By November first the symptoms had abated and patient felt that health was restored. Two weeks later, after considerable exercise and some dietary excesses, the urinary distress returned. With this attack was noted radiating pains from lumbar region to bladder and the back was quite sore. She was examined by her physician who found the uterus and ovaries normal. There was no leucorrhoea. He pronounced the trouble due to the acid condition of her urine.

P. C.—Fairly well nourished. Palpation of abdomen negative. Urine clear, strong acid, no pus, no albumen, no blood. The pain felt during an attack is described as being located in the meatus externus. Cystoscope showed bladder mucosa normal except a small exfolding of the membrane on the floor of the bladder and a similar condition on the anterior wall. Ureters were normal. X-ray examination was declined at this time. The patient was advised that her trouble was probably due to a tendency to heavy, acid urine. She was placed upon a course of alkaline medication, together with liver stimulation. She improved for a few weeks but the symptoms recurred, when she consented to the X-ray examination. When the plates were developed a very suspicious shadow was seen in the lower right ureteral course. The patient left the city immediately after the examination and has not returned. In order to exclude the possibility of the shadow being that of a calcified gland or a phlebolith, a second picture will be made as soon as possible with the shadow casting catheter in the ureter. From the location of the shadow it would seem that a vaginal examination should enable the operator to successfully palpate the suspicious area.

Should further examination confirm the present tentative diagnosis of ureteral calculus the question of treatment must be considered. Very probably the stone could be removed by the vaginal route but this route offers some objections which cannot be wholly overcome, perhaps the chief of which is the greater frequency with which ureteral fistula seems to follow opening the tube from this direction. The extra-peritoneal route through the inguinal region may offer some difficulties owing to the location of the stone under the broad ligament. It has been stated that in these cases the combined intra and extra-peritoneal method is of great value. Before any cutting operation is advised repeated efforts should be made to dislodge the stone by means of the ureteral catheter, the injection of liquid vaseline, etc. If the calculus can be brought to the bladder wall it may be possible to remove it by dilating the ureteral orifice and applying forceps through the operating cystoscope.

Case No. 6: T. W., male. Family and personal history negative. On January twenty-seventh, 1909, had severe cramp in left groin which later extended along the ureter. No decided urinary disturbance, no radiating pains. The attack lasted about two hours, the patient not being confined to bed, and then subsided leaving a sense of soreness which was exaggerated by exercise. On January 29th, a second attack came on which was similar in character, although not so severe, as the first but presented the added symptoms of bladder irritation and retraction of the right testicle. Duration of attack one hour and a half. There was a repetition of the symptoms on January 30th. This attack was short but more severe than the others. Consulted a near-by physician, he happened to be in the interior of the State at the time, and a diagnosis of ureteral stone was made. He came to my office February third. Abdominal palpation was negative except slight pain on deep palpitation over right kidney. The urine was cloudy with pus and phosphates. The microscope showed blood. On February sixth catheter was introduced into the kidney pelvis and a radiogram was taken. The plate when developed showed the catheter reaching to the kidney, and at the line of the fourth lumbar spine the shadow of a small calculus could be seen in contact with the catheter which had passed beyond it. The diagnosis was of course clear. He was put upon diuretics and rather large doses of glycerin. Since that date he has had one mild attack of colic during which the urine became cloudy with pus and blood. Within twenty-four hours that attack gradually subsided and the urine became perfectly clear but upon sedimentation blood corpuscles could be detected. He is still under observation. The plan of procedure as outlined is to keep watch of the urine to see that no damage is done to the kidneys; in the meantime nature is to be encouraged in effecting the expulsion of the stone. If this is not accomplished ureteral oiling will be tried, reserving a cutting operation as a last resort.*

Before concluding I wish to briefly note some points in diagnosis and treatment that are of importance.

First: The history should be carefully gone into. If because of recent advance in diagnostic technic neglect of history taking is encouraged the loss to ureteral diagnosis would be almost as great as the gain.

Second: Physical examination of the patient by the ordinary methods must be encouraged.

Third: The examination of the urine may give the key to the situation and will certainly afford much valuable information. For direct diagnostic purposes the finding of blood is of prime importance. Its continued absence after repeated microscopic search of samples taken at different times would go far toward excluding the presence of a stone.

The character of the epithelial cells and other debris should be noted. We are all familiar with the high claims that are made for the diagnostic value of the presence of certain cell types, but these claims have not as yet been fully substantiated, and while much importance may be attached to them we would probably all hesitate in making a positive diagnosis upon the microscopic findings alone. More independent work by a greater number of investigators is necessary before the last word can be said as to the value of this method.

*The calculus has since been passed. It is small, somewhat irregular in form and is probably of mixed composition.

Fourth: The cystoscope and ureteral catheter are of immense value as diagnostic agents and without them our final diagnosis may remain in doubt. It is only by their combined use, however, that decided advantage is gained for the cystoscope alone can rarely be of service except in those cases in which the calculus occupies the bladder portion of the ureter. The ureteral catheter may show the point of obstruction. Repeated attempts must be made to introduce it further for its onward progress may be hindered simply by a fold in the mucous membrane which with care can be straightened out or which will disappear at another examination. It must be remembered that the catheter may slip past a stone if the latter does not fully occlude the lumen of the tube. This was illustrated in Case No. 6. The use of the waxed catheter is well known. I have had no personal experience with it. The catheter phonendoscope of Cabot or Eaton may be of service. In several of my cases I have thought its employment would afford valuable information. The shadow casting catheter is of much value in conjunction with the X-ray. The use of the styleted catheter was more or less difficult for the stylet as a rule made the catheter too stiff for easy or safe employment. However, these objections do not obtain with the specially prepared catheter that has incorporated in its walls substances that render it impervious to the rays. This catheter can be very readily introduced and outlines perfectly the whole course of the ureter. By its use one can readily determine whether a given shadow is cast by a calculus within the ureter or is made by some substance, as a calcified gland, located near by. These extra shadows are not at all uncommon, especially in the female pelvis, and might easily mislead if not taken into account. In Case No. 5 what appears to be the shadow of a calculus in the ureter may upon examination with the catheter in place prove to be wholly without the tube. We can readily conceive that one of these shadows might be so placed as to correspond exactly with the location of the ureter. In such event it would be difficult to determine the fact before operation but by carefully examining the urine for evidences of irritation, i. e., blood, epithelial cells, by use of the waxed catheter and by the ureteral phonendoscope a differentiation is possible. Dr. Seelig has reported a very interesting case in which the shadow casting substance was in the appendix which in turn was adherent to the ureter. The symptoms in the case exactly resembled those of ureteral stone. Probably had the ureteral phonendoscope been used it would have set the diagnosis right.

Fifth: Of all our methods of diagnosis the one of most striking value is the X-ray. By its skillful use, and under circumstances not too unfavorable, nearly every stone can be located. Not only can it be located but its size and shape can be determined and much valuable information be afforded as to the line of treatment to be followed. In conjunction with the shadow casting catheter many points are made plain that heretofore could not but be obscure. So valuable is this combined method that we can almost assert that no diagnosis is complete without its employment. The more one sees of this class of work the more convinced he becomes that only men specially skilled in clinical radiography can obtain the best results.

Sixth: Three methods of treatment are open to us. 1st, we may adopt an expectant plan and by encouraging free diuresis, by the use of urinary antiseptics, by sedatives, by large doses of glycerin, etc., we may trust to the natural expulsive efforts of the ureter to carry the calculus onward into the bladder from which position it can be removed at our leisure should it remain lodged there. This waiting policy can be followed with the more assurance if the X-ray and ureteral catheter have together demonstrated that the ureter is patulous and the stone is not so large as to positively preclude the possibility of its passage.

2nd: Should the stone not descend an attempt may be made to encourage its passage by flushing the ureter through a catheter introduced for that purpose. Any bland, aseptic fluid may be used but perhaps some oily preparation would be the best.

3rd: These two methods failing we may resort to some operative procedure the nature of which will be determined by the location of the stone and the attending pathological conditions. If the stone is in the bladder portion of the ureter the intravesical route would be the one of choice. If the patient is a female and the stone is located in the lower ureter the vaginal route of approach may be selected. Some objections to this plan have been noted. For the large majority of ureteral calculi the extraperitoneal abdominal route will be the one of choice. It may be combined with the small intraperitoneal slit in some cases that present great difficulties in dislodging the stone through the extraperitoneal incision. The transperitoneal approach is not to be recommended.

Finally: One has but to refer to the literature of comparatively recent date to note how impossible it was to determine only a decade or so ago with any degree of accuracy, the presence or location of a stone in the ureter. To-day by making use of the methods that are well known as much certainty is afforded in this field of investigation as in any other in medicine and from former doubt we are now brought into a comforting conviction that is alike of value to the patient and the surgeon. That all cases can be easily diagnosed is certainly not true as was evidenced in Case No. 4 and the opportunity still remains for the employment of the most acute reasoning that we possess, but with our old and our newer methods wedded together into a useful service the doubtful cases are becoming fewer and fewer and the definite ones are assuming very large and growing proportions.

POST-OPERATIVE PHLEBITIS.*

By CHARLES G. LEVISON, M. D., San Francisco.

To have assured a patient that a proposed operation is free from danger, and then to find after its performance that the individual is invalided perhaps for months, is an experience that must cause the greatest concern to any surgeon, and yet it is an experience not infrequent when phlebitis intervenes as a complication.

In 1895 Piard [1] reported a case of post-operative phlebitis observed by Roux, and strange to say during the ten years that followed, little or nothing was published. The condition of phlebitis following surgical operations upon the gastro-intestinal tract was discussed by Gerster [2] in 1903, and by Munro [3] in 1905, but it remained for Cordier [4] to correctly classify this subject, and to place it before the profession as a definite entity.

Post-operative phlebitis of the lower extremities is a condition that has a classic history, for many of these cases are characterized by very nearly the same symptoms so that the following description will answer for almost any case reported:

A patient more often in the third or fourth decade of life, who has been in fairly good health prior to the surgical intervention, is operated upon for a simple recurrent appendicitis or a bleeding myoma of the uterus. Convalescence for the first 10 days has been without incident. The temperature and pulse have been normal and the sutures have been removed, primary union having been obtained. At this time the patient attracts attention to the left femoral region on account of discomfort and slight pains that gradually grow worse. There is an elevation of temperature to 101° or even higher. The femoral vein is not palpable but there is a marked tenderness along its course. The entire leg is at times greatly swollen. Soon the patient experiences severe pain and the leg is moved with difficulty. At this time the condition is recognized as a post operative phlebitis that usually affects the left leg irrespective of the character of the operation performed. The process may subside in a few days, or it may last for weeks, or it may never disappear entirely; in this respect its history is similar to that of "phlegmasia alba dolens."

Etiology: A thrombo-phlebitis is dependent upon the quantity and the character of the circulating blood; and the first points to be considered are the physiological and pathological conditions that cause its coagulation.

I can do no better than to quote "in extenso" Bidwell's [5] article: "The process of coagulation is due to the action of fibrin ferment upon fibrogen in the presence of calcium salts, the latter being found in normal blood. Fibrin ferment does not exist normally in the blood but is the result of the combination between calcium salts and nucleoproteid; the latter is not present in the blood under normal conditions and it is probably produced in consequence of a degeneration of the white blood corpuscles and the blood platelets.

Ordinarily a certain amount of nucleoproteid can be disposed of, probably by the action of the endothelial lining of the blood-vessels; this power is diminished however by injury or inflammation of the blood vessels or by a retardation of the blood current. As a consequence when a blood-vessel has been injured or the rapidity of the blood stream interfered with, a thrombosis results, because the blood-vessel is unable to dispose of the nucleoproteid that has been formed. Thrombus formation is also favored by sepsis, by an increase of CO_2 in the blood and by general conditions such as chlorosis and anemia, and lastly by specific fevers, more especially typhoid."

With regard to the thrombus occurring after typhoid fever, Wright [6] has shown that the blood of patients convalescing from this disease contains a large excess of calcium salts, and by neutralizing the calcium salts in such blood, its coagulability is diminished. He states that the excess of calcium salts in the blood is due to milk diet since ordinary milk contains 1 in 600 of calcium salts, so he maintains that the particular liability to thrombosis during and after typhoid fever is due to feeding patients on milk for a long time, and that this tendency can be counteracted by adding citrates to the milk. The coagulability of the blood is also increased by restricting the amount of fluids and by giving carbonate of magnesia. The tendency to coagulation is diminished by alcohol, by fluids in excess and reduction of solids, by nitric acid, rhubarb, acid fruits, wines and by tobacco.

The following classification of conditions in which thromboses occur, appears satisfactory:

First. An acute or chronic inflammatory process that involves the wall of the blood-vessel thereby injuring the endothelium;

Second. Trauma is a contributory factor and it may also be produced by operations upon blood-vessels;

Third. A slowing of the blood stream in consequence of tumors, exudates, etc., may be a cause; retardation may also result from a loss of elasticity of the wall of the blood-vessel; if attenuation of the vessel wall occurs dilatation may result;

Fourth. Marantic thrombi that are due to blood diseases, heart weakness and its resultant slowing of the blood stream;

Fifth. Infection; it is well known that infection can cause a phlebitis and its consequent thrombosis; the best example of this is shown in the surgery of blood-vessels, where the failure to carry out a perfect technic is almost invariably followed by the formation of a thrombus in the anastomosed structures, while perfect technic and careful surgery are usually followed by a complete restoration of the blood current. Another good example of infection causing thrombo-phlebitis is seen in the sinus thrombosis complicating mastoid disease. This evidence offers the strongest argument in favor of infection as being an etiological factor in the development of phlebitis. The rise of temperature is also suggestive of an infection.

In Grant's [7] report the opinion of 30 Ameri-

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can surgeons concerning this subject has been published. In response to his inquiry that was directed for the purpose of determining the cause of post-operative phlebitis of the lower extremities, the answers received differed considerably. Some believed that bacterially infected blood was the cause of the process, despite the fact that primary union had been obtained. Others held that the recumbent posture predisposed to the development of the condition, while some contended that the anatomical situation of the vein might be a factor. The quality of the blood was also thought to play a certain role in the development of this process. The foregoing statements go to show that a consensus of opinion up to this time does not exist.

As far as I am aware examination of the thrombus or the interior of the affected vein for microorganisms has not been done, because the condition does not often result fatally, hence it has been difficult to disprove or confirm existing opinions.

The increased frequency of involvement of the left leg might be accounted for by the length of the left iliac vein, and by its being the less direct than the right; or it might be due to its anatomical position situated as it is under the right iliac artery; or the blood current might be retarded in the left iliac vein by a loaded pelvic colon. It has been claimed by some surgeons that a post-operative thrombosis may be caused by a trauma produced by the pressure of the retractors upon the edges of the abdominal wound that causes injury to the deep epigastric veins; the thrombus is supposed to form first at the seat of injury and afterwards to extend down to the femoral vein. This statement cannot be borne out by facts because the process occurs frequently following an operation for appendicitis where no pressure has been exercised upon the left epigastric vein, and notwithstanding this, the left is almost always the leg affected.

Miller [8] states that thrombi are more apt to form where carcinoma uteri or myoma uteri or large ovarian tumors have been removed. In these conditions a chronic anemia frequently exists in consequence of repeated losses of blood; or an acute anemia may be the result of hemorrhage occurring during an operation; when this takes place there is an increase in the number of leucocytes and blood platelets so that the percentage of fibrin is relatively augmented, which produces an increased tendency to coagulation on the part of the blood. This has not been my experience, however, for in my five patients chronic anemia was present but once.

Frequency: Cordier [9] has collected the reports of 14,000 abdominal operations, that show that out of this number there were 232 cases of post-operative phlebitis. Of these 69 followed hysterectomies for myomata; 27 occurred after appendectomies; 9 appeared after nephrorrhaphy and 4 followed the radical operation for hernia. This gives a percentage of 1.65. Other statistics published in America indicate that about 2% of all clean abdominal operations are followed by phlebitis. Cordier states that this condition has developed bilaterally twice in these 232 cases.

Prognosis: When the lower extremities are involved, post-operative phlebitis usually runs a benign course, and is not often followed by complications, and while it may persist for a long time and be exceedingly annoying, nevertheless the condition cannot be considered a disease that is associated with a fatal outcome; on the other hand, thrombo-phlebitis that develops in other parts of the body is often followed by the deposit of emboli in remote organs as the pulmonary artery and brain. When these structures are involved the process is, *"eo ipso"* very grave. An infarct in the lung following operation develops occasionally but it is not necessarily serious.

A thrombo-phlebitis of certain vessels is not an infrequent occurrence following splenectomy for Banti's disease. The writer [10] reported a case of this kind several years ago in which the right innominate vein was completely thrombosed. The condition was, however, followed by complete recovery. When the mesenteric veins are thrombosed as is often the case following splenectomy, the prognosis is exceedingly grave.

Prophylaxis: As has already been seen many opinions exist concerning the etiology of post-operative phlebitis; consequently the views as to the methods of prophylaxis differ widely. Ries and Boldt [11] were the first to advocate that patients that have undergone abdominal operations should be allowed to get out of bed early, that is, as soon as the first 24 hours have passed. For many years these opinions were opposed by most surgeons; but to-day the belief is rapidly gaining ground that the post-operative incidence in patients that are permitted to get out of bed soon after the operation, is followed with fewer complications than when they are treated in the usual manner.

The cause of post-operative phlebitis is obscure but statistics [12] have shown that when patients are allowed out of bed early that this condition has occurred but two or three times in the 1000 abdominal operations collected; hence it is to be assumed that early movement and early rising from the bed by accelerating the heart action and the circulation, exercise a certain prophylactic influence.

Moty [13] has shown that between the years 1890 and 1901 his results were unsatisfactory on account of the catgut that had been imperfectly sterilized. Infection was so frequent that drainage had been invariably employed. During this period there was not a single case of phlebitis encountered, but later when it became possible to sterilize the catgut properly, this condition occasionally occurred. Moty states that he has seen the process develop 5 times between the years 1904 and 1906, which represents according to his figures 1.1% of his total operations.

The hysterectomies reported have usually been abdominal. In the vaginal hysterectomies, phlebitis seldom occurs. Post-operative phlebitis does not develop often in suppurative processes that require drainage, but in the cases that have been reported, the abdomen has usually been closed without drainage, primary union having been obtained.

Kroenig [14] in a recent article published a series of 1000 obstetrical cases in which the patients were allowed out of bed 24 hours after delivery, with the result that without doing harm in any way, the morbidity has been materially diminished. These statistics show that "milk leg" does not develop with the frequency that it does when the patients are kept in bed, which might go to prove that the diminution in the morbidity is due to the effective drainage in consequence of the upright position.

Observations: In my surgical experience post-operative phlebitis has developed in five patients whose histories are as follows:

The first case occurred in a patient 25 years of age in good health at the time of the operation that was performed for a lacerated cervix. Silkworm gut was used for the suture material; the cervix was in a healthy condition at the time of the operation and after 10 days when the sutures had been removed and the patient was ready to be discharged from the hospital, the leg suddenly began to swell and a characteristic phlebitis was recognized. The condition was slow in subsiding and the patient had a leg that was more or less swollen and troublesome for several years, at which time she was lost sight of.

This patient offers an example of a refutation of the theory of drainage in preventing the development of phlebitis; at the same time it must be acknowledged that it is most unusual to have a vaginal operation complicated by a post-operative phlebitis, and when one realizes the great number of this class of operations performed, it will be conceded that this complication is uncommon.

The second case occurred in a woman 32 years of age, in good health. Her appendix had also been removed. A thrombo-phlebitis developed in the left leg about 12 days after the operation, and when seen four years later, she was more or less invalided on account of the swelling and pain in her leg that had persisted despite all treatment.

The third case occurred in a woman 45 years of age who had been exsanguinated from a bleeding myoma that had existed for seven years. The hysterectomy was performed in the usual way and the abdomen was closed without drainage. A phlebitis of the left leg supervened 10 days after the operation; the patient suffered endless inconvenience for a number of years following, on account of the swelling and pain in the leg. As a matter of fact the swelling has not completely subsided to this day which is now a matter of some six years since the operation has been performed.

The fourth case occurred in a girl 23 years of age who was enjoying fair health at the time of the operation, that was performed for a recurrent appendicitis. There was nothing unusual in the operation, and ten days after, when she was ready to leave the hospital, a phlebitis of the left leg developed that confined her to her bed for six weeks; this condition persisted for six months before it disappeared entirely.

The fifth case occurred in a man 22 years of age who was operated upon for a recurrent appendicitis. About one week following the operation, the leg became tender and swollen and a phlebitis was diagnosed. This condition ran a rapid course, convalescence having been completely established after three weeks. This case was the mildest of all.

Treatment: As a matter of fact treatment appears to be ineffective and is purely palliative. An exclusive milk diet should be avoided; free purgation should be carried out for the purpose of unloading the lower bowel, thereby minimizing the interference of the blood stream through the common iliac vein. Fluids should be given in excess and calcium salts and carbonate of magnesia should be interdicted. The patient should have plenty of fresh air and if milk is allowed citrate salts should be administered. Local applications as well as heat and cold together with elevation of the limb are indicated.

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Discussion.

Doctor A. S. Lobingier, Los Angeles: I have seven cases of post-operative phlebitis; they were all after clean operations. In but one case was there anemia. This patient was a woman of full habit in whom I had removed the tubes for hydrosalpinx. I also removed the appendix, so I could not say as to whether this phlebitis was due to the operation on the tubes or the appendix. All these cases of phlebitis were left-sided; they were all apparently in good condition and none were anemic. Two cases were hysterectomies for fibroids and were so-called intra-ligamentous tumors which required rather deep dissection. Neither was an especially bloody operation and there was no difficulty in the ligation. There was very little catgut used in any of the six cases; it was of uniform sterilization and I think it was clean. Two of the cases were simple appendix cases in the interval. So far as could be observed there was no clinical evidence of the presence of septic bacteria at the time of operation. All of my operations were done with gloves and all the assistants wore gloves sterilized under pressure by the dry method. I am of the opinion that these cases are infective. No matter how perfect our technic we know that we cannot be absolutely sterile. There is always an element of doubt. I think that traumatism may have considerable to do with this trouble, as it has in infections anywhere. There was no suppuration in any one of the six cases. They all occurred between the twelfth and sixteenth day after operation. In three of them no retractors were used at all. I very seldom use retractors. I use metal in the abdomen as little as possible and manipulate the intestines as little as possible, so I think, as far as my experience has been, very little could be laid to traumatism and still less to defect in asepsis. I have the feeling that every one of these cases is an infection of a rather low form, sufficient, however, to produce the thrombus.

Doctor James J. Hogan, Vallejo: In reference to the etiology of phlebitis, I have had experience in the investigation of four cases of phlebitis, two operative and two following ordinary diseases. In two, because of the question of diagnosis, a blood culture was made and I was able to demonstrate the invading organism. In one case following pyelitis, the colon bacillus was the organism. Another case followed an apparent typhoid and although no typhoid bacilli were found, the invading organism was staphylococcus aureus. In two other cases of nephrectomies a post-operative phlebitis following, at the end of ten days and four days respectively, the staphylococcus albeus was found. In those cases where a temperature is running, if the culture is taken directly from the blood you will be able, in some cases, to clear up the cause immediately. My work has been limited but in all I have been able to demonstrate the invading organisms. If we will do this blood culture work, or even open the vein at the site of the worst part of the infection, I believe it will be easy to demonstrate the infection. I believe all cases of phlebitis with temperature and other signs of general infection are produced by some micro-organism and if we resort to the above methods a diagnosis will be made in many other cases.

Doctor A. B. Spalding, San Francisco: We all know that cases of phlebitis occur occasionally in obstetrical practice and just to present to the Society some points differing with those mentioned, I would like to mention a case occurring during the last year in hospital practise, a thrombosis following fourteen days after a normal delivery. The patient was delivered by an interne and there was no temperature at any time. The patient was out of bed on the fourteenth day and shortly afterward noticed a slight tenderness in the right calf. There was a slight swelling the next day (2 cm. enlargement around the calf) and slight tenderness in the right popliteal space. There was no temperature. The blood cultures made were absolutely sterile. The patient was of the type who could not understand her condition or why she was kept in bed after having progressed so well and feeling so well. Sight tenderness in the vault of the vagina was noted but not enough to diagnose a septic condition. The leg was put at rest with a bandage. Although warned to remain absolutely quiet, she thrashed about in bed and about seven days later as a result she died from an embolus about three or four minutes after the attack began. The family refused an autopsy so that the only points to be presented are that the blood was sterile and the condition throughout afebrile. One point to be brought out is in regard to the nucleoproteids in the blood. We know that in the obstetrical patients a leukocytosis always exists after confinement and rapidly disappears which must throw a lot of nucleoproteids into the blood.

Dr. S. J. Belknap, San Jose: I have had two cases of phlebitis, one in an operative case for interstitial fibroid, following about ten days after the operation in which I removed the right ovary and the posterior bladder wall had grown right up into the wall of the tumor. The patient got along nicely, healing occurred by first intention until about the 10th day when there was a lumbar swelling and the temperature rose, the highest point being about 102°. This lasted for three weeks without further disturbance, the temperature settling down. Another case was brought under my care in the very late stages of suppurative periostitis and he was a case who had been demented and was very much emaciated. He died a very few days afterward. The swelling was very large from the foot up to the body and remained that way without relief until death. There was temperature in both cases.

Dr. H. M. Sherman, San Francisco: I think that the discussion of this subject is one which should pass from the general surgeon to the laboratory worker. The discussion would bring, as in one on intestinal obstruction, very little elucidation of the problem. It has got to go into the laboratory. I have seen seven of these cases, one after a sprained ankle, two after no possible assignable cause, two following appendectomies, one following in the right leg by the ligation of varicose veins in the left leg and one following in the right leg the excision of ulcers with skin grafting in the left leg. I cannot generalize from them and must refer the matter to the laboratory for a final complete answer.

Dr. T. W. Huntington, San Francisco: While this is certainly a laboratory problem as has been said by the reader, there is one point of the highest possible clinical significance which laboratory investigation, thus far, seems not to have explained, viz: why the trouble always exists on the left side. We can demonstrate that a thrombus of any type or character is probably septic. But I would like to know why, in most cases, we find this trouble on the left side? When this question is solved, it may happen that preventive means can be devised.

Dr. Raymond Russ, San Francisco: I think that in connection with what has been said we should remember the extensive work which has been published by A. Broca of Paris on Varicose Phlebitis. Broca lays stress on factors in the etiology which are not generally recognized. Thus he emphasizes fatigue, especially if accompanied by privation. From our point of view such a statement may seem extreme but again it is to be noted that Briquet has placed cold as an etiological factor and also believes that pressure may account for the condition. LeDentu, Thomas Browne and several others have placed contusions, although they be very slight, in the causation. These statements have been made by keen observers and men of large clinical experience. It is also to be mentioned that blood cultures have sometimes been found to be sterile in cases of post-operative phlebitis.

HEADACHE—A SYMPTOM AND ITS SIGNIFICANCE.

By FRANK W. MILLER, M. D., Los Angeles, Cal.

I am constrained to select this subject for my paper, 1st, because it is the commonest symptom that comes to our office; 2nd, it is all too often considered of small importance by the physician; 3rd, that while it concerns not necessarily the life, it affects the comfort of millions of people and renders an existence often intolerable; 4th, that it may be either the chief or an auxiliary symptom, but if it is the most prominent, it assumes great clinical importance.

The headaches that this paper deals with are not the transient, irregular kind that are due to some faulty habit of life—eating, drinking, etc.—not the headache of "the morning after the night before"—but those distressing, persistent, recurring, habitual (in a sense that they are constant) types that demand more than ordinary measures for their alleviation and cure.

Neither is it the purpose of this paper to discuss neuritis, disease of periosteum, cranial bones, etc., that simulate headache very closely, but have no place in a paper of this character, except to be mentioned as a possible cause of error in diagnosis.

I should also like to dispose of the term "neuralgia" at this time. There is a prevailing tendency among medical men to use the term "neuralgia" to

cover a vast array of assorted head pains. This is often done because the name satisfies the patient and it saves a great deal of time and effort in tracing the condition of its true origin. The term conveys nothing definite and in no way suggests its etiologic factor or its cure.

Pain and sensation require for their manifestations the proper interpretation by the central system, which in turn projects this same sensation to the periphery, and to say that a nerve trunk or its branches are capable of pain, is erroneous. Neuralgia is due to irritation of some sort, and the character of this irritation should be considered and not the pain, which is secondary to it.

It is extremely difficult to distinguish and determine when pain caused by irritation (functional) ceases and that by reason of the nerve change (organic) begins, and this fact alone is accountable for the general misunderstanding concerning neuralgia.

Unfortunately, but little is actually known of the real mechanism of headache. It is probable that no analogous condition exists in the body.

Brain substance itself appears to be insensible to ordinary tactile and painful stimuli. Disease of cerebral tissue may exist without pain (abscess, etc.), but the coverings of the brain and its vessels are liberally supplied with nervous elements from the trigeminus, four upper cervical and sensory branches of the vagus—nerves which convey sensation to the central organ. These same nerves also supply the extra cranial structures, which fact accounts for the mixed (deep and superficial) pains found in most varieties of headaches. Any sort of irritation produces results as variable as the stimuli and clinical manifestations are extremely irregular.

That headache is not alone the result of irritation, is attested by the fact that an anatomical and physiological perfection is almost an unknown quantity. Irritation of some sort is constantly present. It requires another element, viz., imbalanced and susceptible nervous system. Normal nervous systems have a marvelous power of accommodating themselves to continuous and prolonged irritation (an instance—brain tumors, abscess, etc., without symptoms). Before a seed can germinate it must fall upon congenial soil (nervous system). Stimuli must be either severe enough to break down the normal resistive power, or the nervous system must be below par either from inherited or acquired causes in order that these cephalgias may occur. Therefore, we must always bear in mind that headaches are dependable upon two general conditions, viz., the abnormal nervous state and the peripheral irritation. That the neuropathic diathesis is often aggravated by the constant irritation is granted, but the nervous stigmata is usually present a priori.

The proper correlating of cause and effect is often extremely difficult, but it is quite essential. Great and long have been the various discussions concerning this fact, and very little accomplished. The neurologist looks upon the diminished resistance and sees in it the cause. The oculist (for instance) considers only the irritation. The neurologist claims that 45 per cent of all headaches are neurasthenic; the oculist that 50 per cent are due to eye-strain. Neither is right, for each looks upon the condition from his own constricted view as a specialist, and fails to consider that his deductions are made from a class of cases referred to him for specific reasons, and not the general class that furnish the only true basis for statistics. Their point of view is different and it is but recently that any concessions have been made on either side. Each has had cures by the removal of their cause, but much more would be gained if they would meet each other half way and recognize the true state of affairs through a more liberal view of the matter.

Given this neuropathic state, the various stimuli produce symptoms directly in proportion to the susceptibility of the individual; hence, the degree of a distress is in no way commensurate with the existing cause.

Heredity is a very prominent factor in most cases of cephalgia. Not that headache can be and is inherited, but the temperament and highly organized and sensitive nervous system is usually handed down to posterity, together with many anatomical, etc., peculiarities (the asymetrical skull with its muscle imbalance and astigmatism, being a notable example), which also furnishes the irritation necessary to complete the clinical picture. The patient recognizes the fact that his "headache ancestors" have "handed it" to him and resigns himself to the idea that he was born to a heritage of pain from which it is useless to seek permanent relief.

In studying headache, the first thing required is a complete and careful history of the case—heredity, previous infections and traumas, occupation (in regard to alcohol, nicotine, sexual, business worries, etc.), nature of the pain, location, duration, what aggravates or precipitates it and what relieves it. To secure a history that will be of value, requires great tact and skill, for all of these neurotic individuals are extremely susceptible to suggestion and much care must be exercised in questioning them so as not to produce misleading answers.

In order to obtain an intelligent and accurate idea of any symptom with such multitudinous causes, it is first of all necessary that some classification be made in order that a correct interpretation and estimate of each detail can be reached.

(We, as physicians, are notoriously poor in business methods, and I believe if we would take more from the business world we would accomplish a great deal with less effort. The chief thing to be learned is "system" and the simplest system and routine is the one desired.)

The text-book teachings are extremely indefinite and possess little of value, and must always be liberally interpreted—(for instance, syphilitic headache is not always worse at night; brow pain is not always eye strain; headaches occurring monthly in women not always uterine).

In medicine, it is unfortunate, but true, that few symptoms are constant and free from exception, but of this particular one we are discussing, atypical cases are almost the rule and the value of each fac-

tor must be taken for what it is worth in determining the symptom complex.

In looking over the literature, I was struck by the fact that each author has resorted to his own arbitrary classification of headaches. Musser classifies them into two general groups (Deep and Superficial).

Also into extra cranial (1) Scalp (skin, muscle, nerves); (2) Cranium (periosteum and bone).

Extra cranial (1) Functional, (2) Organic—Acute and Chronic.

He further divides them as to their general origin.

Mayer's classification is largely as to their cause and to my mind is incomplete.

Butler places considerable emphasis on location of the pain.

Other classifications are equally unsatisfactory.

However, I shall not avail myself of the privilege and opportunity that is here afforded to make any definite classification, but in order to make clear and explain certain features of headache, it will be necessary to take up separately each general class, for the phenomena are not uniform and types have a decided tendency to become atypical and mixed.

The character of the pain, its location, duration, aggravating and relieving causes, are the only tangible factors that we have, and of these the location of the distress is perhaps the only one possessing much value.

The character of the pain (which is variously described as (a) sharp and lancinating, (b) pulsating and throbbing, (c) dull, heavy, diffuse, (d) binding, pressing, squeezing, (e) hot, burning, sore), will be given slight attention because it is of small value for diagnostic purposes, being extremely variable and inconstant (except in rare instances—clavus) and dependable largely upon the patient's power of description.

I. *Organic.* Headache under this subdivision is caused by two factors—pressure and inflammation.

As before noted, cerebral tissue itself is not sensitive, but if any lesion involves or in any way disturbs the normal state of the cerebral coverings, or its blood vessels, pain is evidenced, usually of a severe type. Abscess, cyst, tumor, hydrocephalus, etc., involving only the cerebral tissue and not creating increased intra-cranial pressure, are free from pain; and it is only when the periphery of the brain is approached or the pressure involves its membranes that it becomes apparent.

The pain occasioned by increased pressure is usually accompanied by other evidences of organic cerebral disease (optic neuritis, mental abberation, focal symptoms, vomiting, etc.), and can hardly be mistaken. Inflammatory types of organic cerebral disease are usually infective—the various forms of meningitis (both acute and chronic) furnishing the most common example. Disease of blood vessels (arteriosclerosis) and cranial bones produce severe pain but are not often encountered. Syphilis should perhaps be particularly mentioned, as it furnishes both types (pressure and inflammation) and is an extremely common factor, producing lesions that should be classed as organic rather than toxic.

Fortunately for both the physician and the patient, organic headaches constitute only a small class, but their possibility must always be borne in mind and care exercised, for a differential diagnosis between organic and functional headache is of fundamental importance since their prognosis (except in luetic cases) is extremely grave and the relief of the pain almost as impossible as the cure.

The site of the head-pain in these cases is often of little value for localizing purposes—circumscribed inflammation of the various structures furnishes well defined evidence of the lesion, but in pressure cases, or extensive inflammation, the pain is diffuse, variable and shifting, and may even be projected to the periphery. The character of the pain is of but little value and presents nothing characteristic, except that it is the most severe and persistent of all cephalgias.

II. Toxic: Headaches produced by toxemia *alone* are comparatively infrequent. They are the result of direct irritation and changes in their terminal nervous elements, produced by poisons floating in the blood stream. They are of all degrees, locations, character and duration, and have no distinguishing features.

The uraemic headache (excluding hypertension) is a typical example of this class. Gout, lithaemia, chronic malarial poisoning, lead, alcohol, mercury, tobacco, diabetes (acetonaemia) the products of faulty intestinal metabolism, etc., each contributes its peculiar irritant that makes for these headaches. In some instances, infectious processes also are responsible for the elaboration of the exciting cause.

It is exceedingly difficult to distinguish between headaches caused solely by toxaemia and those resulting from disturbances of circulation that are dependent upon it.

III. Circulatory: Headaches produced by disturbances and disorders of circulation, are the most common and are correlated very closely with practically every other type.

The condition of the vessel wall—pressure of the blood stream—the condition of the heart—the interference with the return flow from the brain—the quality of the blood and the vaso motor control of the vessels are all factors in the production of this class of headaches.

Disease of the vessel walls (venous and arterial) should perhaps be considered as organic, but their influence on the blood stream entitles them to this classification also.

Hypertension, either from peripheral contraction or increased heart action, is extremely common and the head shares with the rest of the organism its damaging effects.

Diminished pressure with stagnation due to a relaxed condition of the vessels (particularly noticeable in the aged) is a common source of distress.

These two chief forms of cerebral hyperaemia are dependable largely upon vaso motor control of the

vessels, which in turn is influenced by innumerable factors of a diversified nature.

External influences (exposure to the sun or intense heat), toxic agents, reflex irritation, etc., produce an active hyperaemia that causes the flushed face, injected eyeground, etc., together with the throbbing, bursting headache that is increased on lowering the head.

Passive congestion is rare and is caused (as before noted) by relaxed blood vessels in the aged, obstructive conditions of the neck (tumors, clothing, etc.), and by cardiac disease. Mouth breathers experience a morning headache that is due to a failure to properly aspirate the blood from the head into the chest (a true passive congestion). These headaches are diffuse and an exceedingly common accompaniment of acute infectious processes.

Cerebral anaemia may be dependent upon general anaemia, prolonged emotional excitement (vaso-motor) excesses, etc., or more rarely from aortic disease. The pain is vertical and characteristic—is not throbbing, but is described as a sensation of weight—the extremities are cold—face and eyeground pale—mind depressed and lowering of the head relieves the pain.

Circulation is a feature of all headaches and should always be considered for frequently it is its abnormal condition that is the direct causative factor, whether the chief exciting cause be organic, toxic, neuropathic or reflex.

IV. Neuropathic and Psychopathic: A large number of headaches must be placed under this heading. Inherited tendencies, artificial conditions and habits of life have created a vast number of individuals who present certain illy-defined symptoms (more or less variable) that are included in the general term—neurasthenia. An exact definition of the term is hard to find, but it is sufficient to say that in its large assortment of clinical symptoms headache finds a prominent place.

These headaches are characteristic and fairly constant and are due not to any single factor as was formerly taught, but to a series of conditions that are more or less associated in each individual case, viz: vaso motor disturbances (paralysis)—auto-intoxication (hyper and sub-oxidation) cellular exhaustion (with the elaboration of a specific poison), etc.

The chief sites of the distress and pain are frontal, occipital and sub-occipital regions, although no part of the head is free from it.

These patients, with their usual well-developed powers of expression have described its character in every possible way and have compared the pain with everything disagreeable. For this reason its diagnosis must be negative and all other sources carefully excluded.

Epilepsy and exophthalmic goitre produce headaches that are extremely distressing but are not characteristic. Hysteria has for one of its varied manifestations a characteristic headache (clavus) that cannot well be mistaken.

V. Reflex: The term "reflex" as applied to headaches is a misnomer, but for want of a better term it is used to express those cephalgias that are the result of abnormal conditions, separate and remote from the site of the distress. Their manner of production is dependent (chiefly) upon two factors, viz: (1) Irritation of some branch of the same nerve or nerves that directly supply the head (a projected and transferred sensation—not reflex). (2) A disordered state that so affects the circulatory system (through the vaso motors or otherwise) as to influence the blood supply of the head.

The former explains the pain occasioned by disturbances in contiguous parts;—the latter, those that occur from lesions remotely situated. The most marked instance of the latter type is the headache so common in women from pelvic disturbances. These headaches are usually vertical and occipital and are relieved by pressure—this fact alone demonstrating their circulatory nature.

Gastric and other visceral irritation (visceral neuralgia) is analogous to pelvic and the relief obtained by vomiting is but evidence of the removal of the exciting cause.

Each organ of the body might be taken up in detail, but the phenomena are the same and it is not necessary to go into particulars.

The intimate and elaborate nerve and blood supply of all parts of the head make it possible for any local disturbance to produce headache.

The teeth, nose, eye, etc., depend for their sensation chiefly upon one nerve and this same nerve supplies the intra as well as the extra cranial structures capable of sensation. Hence, we find as one of our most common sources of headache, local condition that in any way departs from the normal.

Carious and diseased teeth must always be considered, but it should always be borne in mind that teeth free from pain in themselves may and often do produce headaches that are extremely distressing and intractable.

We are likely to overlook in our scrutiny for the rare and unusual, the small and apparently insignificant sources of irritation.

The nose and its accessory cavities contribute to the production of headache.

Inflammation of all kinds and degrees, together with their accompanying phenomena, local irritation, pressure from turgescence, retention of secretion, diseased bones, etc., produce distress that ranges from slight and annoying to the point of intolerance.

Being an oculist, I have modestly reserved for the last the most common source of headaches that belong to this or perhaps any other class, viz: the eyes.

Eye strain is a term of much latitude and embraces every form of departure from the normal that affects the visual apparatus. Errors of this part are more manifest for the reason that a constant state of activity is maintained during all the waking hours and no opportunity for rest is afforded.

Refractive errors—muscle imbalance, sub-normal accommodation, etc., being present, the effort made to readjust the condition and maintain binocular

single vision and acuity produces a train of nervous symptoms that headache leads in point of frequency.

Ocular headaches manifest themselves in the frontal (brow and temple) and occipital (nape of neck) regions. There are very few exceptions to this rule unless the condition becomes severe and then the headache may be diffuse. (The pain due to refractive conditions usually being confined to the frontal region and muscle imblance to the occipital.) The pain of iritis and glaucoma cannot be mistaken for the accompanying eye condition is easily recognized. Eye headaches are of varying intensity and character and range from the mild brow ache to the severer type of migraine. The degree of the distress bears no relation to the nature and extent of the lesion. The cure of these headaches is obtained only by the *proper* fitting of lenses (or a change in the character of the work the eyes are called upon to perform) or the restoring of the normal balance to the eyes.

The *proper* fitting of lenses is a rare art (a recent article by an eminent authority to the contrary notwithstanding) and I believe it to be no exaggeration when I say that not more than 25% of all persons wearing glasses (not presbyopes) to-day are properly fitted.

And I would caution general practitioners not to place too much reliance on the statements of oculists and opticians (I regret to say that many physicians still refer work to them) that the eyes are normal or properly fitted, and that the headaches have another source, until firmly convinced and satisfied that such is the case. Innumerable instances of error in this regard have been productive of much chagrin and disappointment.

On the other hand, I would caution you in referring your work to the oculist, not to be too positive that the eyes are at fault, for if they are found to be normal, it reflects not only upon you, but I can assure you greatly embarrasses the oculist.

The absence of symptoms obviously referable to the eyes, does not exclude them as an etiological factor in headaches, and no study of a rebellious case of headache or obscure nervous disease should be considered complete until a careful examination of the eyes has excluded them as a possible cause—such an examination must be exhaustive and painstaking, for small errors of refraction or abnormalities of binocular balance create profound impressions on delicately poised nervous systems.

Migraine. I have given migraine a separate heading for it possesses features that are distinctive and characteristic. Strictly speaking, it should not be classed as a headache at all, for it is more than that and unlike any ordinary neuralgia.

Migraine is one of the greatest disasters that can befall an individual; it incapacitates him for work and renders his existence miserable. Its symptoms are so common and so well recognized as to need no repetition. Error, however, is frequent, for considerable variation exists in the true type and atypical cases tend to confusion with other conditions. Many headaches are classed as "migraine" which have little in common with it. Hence the endless discussion regarding it, and the hopeless confusion of it all. Gould says the term is obsolete, indefinite and should be excluded from the language—and until men are agreed as to its characteristic phenomena, no final agreement can be reached.

Dana says that migraine is a fulgurating (explosive) neurosis, with periodical discharges which has for its seat the cerebral cortex, or possibly the primary sensory centers, i. e., the root ganglia of the fifth and vagi nerves, and is not sympathetic as was formerly taught. Plavic claimed that a periodical swelling of the hypophysis was the cause. Innumerable theories might be cited, but after all has been said it is evident that its pathology at the present time remains unknown. It occupies the same position in the sensory nervous system that epilepsy does in the motor, and until its pathology is discovered and it is recognized as a complex condition, it will continue as one of our most formidable diseases.

To determine whether we have to deal with a true migraine or other conditions simulating it, is often a perplexing question, and frequently cures are reported which have for their basis the failure to distinguish this point. True migraine frequently (but not always) possesses a characteristic feature that should determine it, viz: aura. These aurae (usually sensory) are present in no other disease, and present a striking analogy to epilepsy. They consist of various sensory phenomena (numbness and tingling of the extremities, ocular disturbances, scintillating scotomata, henimopsia, visual hallucinations, etc.), and invariably disappear before the onset of pain.

Migraine is essentially a "specialist's disease"—i. e., it is ultimately referred to him.

Specialism has a tendency, unless strongly combated, to narrowness, and each variety treats from his own particular viewpoint and persistently refuses to recognize and credit other methods than his own.

That migraine is necessarily a condition that needs for its manifestation both the inherited, unbalanced, nervous organization and some peripheral irritation, must be patent to all who closely observe. Mobieus claims that 90% of all cases of migraine show the evidence of some inherited nervous stigmata (not necessarily migraine).

Neurologists consider this the chief feature and have wrought wonderous cures by correcting this tendency; on the other hand, Dr. Gould, in a personal letter assures me of the cure between five and six thousand cases of migraine (in its narrowest sense) by removing the source of the irritation, which he dogmatically asserts is always to be found in the eyes. That the eyes are frequently at fault cannot be denied, for the testimony of innumerable cases of cure by the correction of ocular anomalies, or the cessation of the attacks following loss of accommodative power (paralysis) is irrefutable.

The eyes, however, are not the only source of peripheral irritation, for the removal of other stimuli (nose, pelvis, etc.), have accomplished cures and every possible kind of irritation has been known to

precipitate attacks in individuals sufficiently susceptible. However, Dr. Gould's brilliant record is entitled to serious consideration, for there is none that in any degree compares with it, and that the large majority of cases have their exciting cause in the eyes is the consensus of opinion at the present time. Often the removal of the exciting cause alone results in a cure, and when the nervous or psychic condition is or can be rendered normal, no amount of irritation will precipitate an attack; so if both the neurologist and oculist would extend their horizons and recognize this fact, their records of cures would be markedly increased, and results accomplished that are now impossible.

Cures are not as a rule immediate, but require great patience and skill, for lifetime habits of nerves and eyes do not yield graciously to any corrective effort, and often we must be content with a mitigation of the severity and the extension of the interval.

The significance of persistent headache lies in the fact that it possesses a causative factor that is frequently of such a nature as not only to render the patient miserable, but to threaten life itself.

Headache, moreover, is often the only symptom prominent, while other morbid phenomena are obscure—it thus acquires in doubtful cases diagnostic value often of a high degree.

Again, it is a symptom of many diverse conditions—its pathology is multiform—its etiology varied and irregular. It is only a symptom and often one of many that make up the morbid complexus and its cure as a consequence is often difficult.

THE MEDICAL SIDE OF HEADACHE.*

By J. WILSON SHIELS, M. D., San Francisco.

All headaches are complex and obscure. We have little exact knowledge of the structures wherein pain is felt. We do not know what pain really is. Clinically we desire to believe that the consciousness of pain must be related to the activities of certain nerve cells in the cortex. And that these cortical cells are reached by currents of overflow from other sense centres when the violence of their inner excitement surpasses a certain pitch; and they, in their turn, are concerned in receiving impressions from nerve fibres by which the sensory impulses pass from the part or parts complained of. Indeed there is no good reason why these lower sense centres should not also be considered pain centres when they have reached a point previous to the overflow of their inner excitement.

Wise men specializing in physiological investigation refute much of this. In fact they seem to take a particular pleasure in trying to prove our clinical findings faulty, and this continual refutation leaves us in a wilderness of ignorance crying aloud "What is pain?" "What is its relation to other forms of sensation?" "Is it the product of a special sense?" The physiological echo answers "Is it?".

Again we implore "May it not be inherent to, and appear in any of the known separate senses?" Again the scientific answer, "May it not?" And so, in the effort to be of service to suffering humanity, we pin our faith to clinical observation and to pathology; stating, as we do so, that however learned the physiologist may be, he must necessarily be gravely handicapped; for he must rely upon signs born of subjective conditions rather than upon intelligent verbal communication and he will pardon us if we look for a fuller advantage from clinical pathology.

We know that moderate pressure registers touch, extreme pressure pain. The pain produced in a limb is very surely conveyed to the cortical cells related to that limb, and in the habit of receiving impressions from it. By many other familiar facts are we justified in regarding pain as an excessive stimulation, or reaction, of the tactural and other species of cutaneous sense.

Now the brain substance itself is no doubt represented by cortical cells in the same way, yet under normal conditions we know it to be destitute of sensibility; just as we know that all tissues and organs supplied by the autonomic system are not endowed with sensation in the same light with which this term is used when applied to tissues supplied by the cerebro-spinal system. But we also know that any of these organs—heart, stomach, bowels, liver, kidney,—may, when disordered, produce the very ecstasy of pain. This being the case why should it not be that any part of the brain when actively inflamed and producing intense pain, should have that pain sent by afferent fibres to those cortical cells which are in health related to, and receive impressions from it? This hypothesis we also apply to actively disordered membranes, which, by the by, seems to be the common point of attack of all reflexes, and to bone, for we know that both are possessed of sensory fibres which when irritated produce pain, referred to, and perceived by, those cortical cells receiving normal impressions from them. The clinical truth of this is seen when many a deeply centered lesion, say of the central ganglia, coming nowhere near the brain's surface, is associated with acute headache, and if further proof of this separate representation in the cortex be desired we recall the fact that sympathetic fibres follow the arteries into the brain substance; that the cortex at all times influences the state of these arteries; that this association must mean a very close relationship between the cortical cells and the vaso-motor centres, and that a hyperemia, active or passive, will, by increasing intracranial pressure, so excite them that severe pain will result. Or if you like it better, for we cannot always give the reason why the cortical cells take on an overaction during hyperemia, that they are susceptible to spontaneous overaction consequent upon increased blood supply, and that this spontaneous overaction is synonymous with pain. Daily evidence of this is given us in brain tumors where the most modest cough, or the slightest stoop will add the very extremity of pain to an already unbearable agony.

So it would seem that headache in no way differs from the production and perception of pain in other organs, or tissues. It is a reflex phenomenon the out-

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come of functional or organic disorder; the seat of its origin need not be the locality where it is felt, but in the peripheral territory of the sensory fibres associated with cortical or nuclear cells acting as pain centres by virtue of their overexcitement. The various states of cerebral vascular tone producing a resultant increase or decrease of intracranial pressure becomes one of the most, if not the most, important factor in its production. If we could (by our present clinical methods) always gauge intracranial pressure from general blood pressure we would frequently be in a position to explain many a headache, toxic or otherwise, and follow that explanation by rational therapeutic measures. But we cannot do this, so after all, when all is said and done, headache remains a mystery, a poor index to the diagnosis of material and immaterial lesions or conditions of the human body.

Classification and Cause of Headache. When one realizes that any pain in the head may be called a headache, that on the one hand it may be so transient and mild, and on the other so persistent and severe, as to cause the patient either to ignore or to crave relief, one feels the hopelessness of classification. Nevertheless I have endeavored to do so, and here present you with the result of that endeavor. Kindly accept it in the spirit that it is presented. There is nothing didactic in my intention. Time is short and any one of us could dilate for an hour on a division of this arrangement. It is far from perfect and overlaps continuously, and in presenting it I find myself in great fear of being misunderstood. I mean no insult to the intelligence of this audience for without a doubt the causes of headache are well known to you all; but what to say, and what to leave unsaid, has been a continual source of worry and alarm to me. Your very learned and most capable committee have commanded me to write upon the medical side of headache and I am given twenty minutes to do it in, and in my poor effort to do the subject justice I have been forced into presenting this classification. I repeat that I am possessed with its imperfections for although it seems worthy in my mind it looks unworthy on paper. This unworthiness is accentuated by the necessity of placing certain headaches under all the headings. If it will serve as a good working basis for therapeutic considerations and as a syllabus to this paper it will have fulfilled a purpose.

CLASSIFICATION AND CAUSE OF HEADACHE.

I. FUNCTIONAL HEADACHE.

A. TOXAEMIC HEADACHES.

(1) Acute.

(1) Specific infectious (fevers) frontal or general, seldom vertical or one sided. Increased by congestion.
(2) Acute nephritis (following the above) acute uraemia.
(3) Acute composite diabetes (autointoxication with acetone bodies).
(4) Puerperal states other than nephritic failure, preseptic.
(5) Acute drug poisoning, e. g., amyl nitrite, nitroglycerin, etc.

(2) Chronic (Including products of defection metabolism).

(1) Kidney headache. From slight neuralgic type to severe with high grade arteriosclerosis. D.D. when severe with alb. neuritis from cerebral tumor.
(2) Gouty headaches. May be a severe "plus tension" headache or mild "minus tension" headache.
(3) Malarial headache, neuralgic in type, "brow ague." Short intermissions.
(4) Rheumatic headaches common in childhood and associated with "school pressure." Frontal.
(5) Syphilitic.
(6) Sluggish liver headache associated with constipation.
(7) Cirrhotic liver headache (more complicated than No. 6).
(8) Constipation headache, without liver associations. (Also reflex.)
(9) Intestinal dyspepsia headache, with or without constipation. (Also reflex.)
(10) Gastric dyspepsia. (Also reflex.)
(11) Gluttony of fats, proteids, or carbohydrates, i. e., acid products.
(12) Slow drug poisoning, e. g., arsenic, lead, etc.
(13) Noxious air, etc.

B. NEUROPATHIC.

(1) Emotions and other psychic faults. (Hyperaemic.)
(2) Migraine (typical), two types, tonic or paralytic, but generally combination.
(3) Recurrent or periodic headache without visual phenomenon.
(4) Simple neurasthenic headache. (Not sharply defined, "Cephalic sensation.")
(5) Traumatic neurasthenic headache. (Generally sharply defined.)
(6) Epileptic with or without fit.
(7) "School pressure" headache.
(8) Premenstrual headache other than migraine.

C. REFLEX.

(1) Errors and disorders of eye, ear, nose, throat and mouth. (When recurrent usually neuropathic, frontal sinus.)
(2) Gastric, including hunger and fasting, hyperaesthesic, scalp areas, temporal and parietal (D7 and D8).
(3) Thoracic and hyperaesthesic; scalp area, midorbital and fronto temporal (D4 to D7).
(4) Abdominal and hyperaesthesic skin areas, occipital, parietal, vertical and temporal (D7 to D10).
(5) Migraine (anaemic and hyperaemic).
(6) Periodic other than migrainous.

II. ORGANIC.

(1) Inflammations within:
Encephalitis, local or diffuse from any cause. (This includes many of the above.) Lepto and pachymeningitis.
(2) Inflammations without:
Sinus disease.
Bone disease (including middle ear, syphilis, etc.).
(3) Arterial degeneration (see chronic toxic headaches).
(4) Tumors (including syphilis, tubecular cysts, etc.), severe, dull or acute, constant with paroxysmal attacks. No definite position unless superficial, preventing sleep. Intracranial pressure augments, vertigo, optic neuritis, etc.
(5) Indurative (see toxic).

III. CIRCULATORY.

A. ANAEMIC, slowly produced; majority "minus tension" headaches; controlled by position and alcohol.
   (1) Systemic (convalescence).
   (2) Blood dyscrasias.
   (3) Cardiac debility.
   (4) Consequent upon pressure.
   (5) Consequent upon spasm.

B. HYPERAEMIC, majority "plus tension."
   (1) Heart hurry (exophthalmic goitre, etc.).
   (2) Cold, etc. (peripheral spasm).
   (3) Drugs, nitroglycerin, etc.
   (4) Sunstroke (excessive heat, alcohol, anger).

C. PASSIVE CONGESTION, "mechanical headaches."
   (1) Mitral and other head lesions.
   (2) Mediastinai tumor.
   (3) Persistent cough.
   (4) Faulty attitude in sleep.
   (5) Collar restrictions, etc.

Before enlarging upon this arrangement allow me a few general remarks. There are few well defined beginnings of headache. When one is searching for the indefinite one must be prepared to fail to follow and obey that very easy-to-write-book-axiom "Find the cause and remove it." We have not the same difficulty in finding the exciting cause. In headache it is the vague causative something that must be found and removed. Do not misunderstand me. The removal of the exciting cause is all important, but my personal observation has taught me to beware of the underlying nerve diathesis in all chronic recurrent headaches and to appreciate that no cure is complete without an attempt either to remove or control it. For example the correction of a visual error will banish the acuteness of the headpain like snow in summer sun, and the physician may rest content instead of continuing his treatment in the hope of alleviating the underlying neurosis and at the same time warning the patient to avoid other exciting headache causes. I have over and over again seen and known of such patients who have had a return of periodic headache with an exciting cause of intestinal origin. In other words a neuropathic diathesis underlies chronic headache whatever the exciting cause may be, and the more marked the history of this taint the less necessary or mild need be the excitement.

I do not agree with the medical men of consequence who consider a classification based upon the period of life as useful. Nor do I think it wise to arrange headaches according to the position of pain. Too many diagnostic errors are consequent upon such a method. Again I am antagonistic to the use of such terms as paroxysmal, toxic, and periodic in classification, for nearly all paroxysmal and periodic headaches are toxic in character. One hears the expressions deep and superficial applied to headaches. I object to such an arrangement. It is lop-sided. The majority of headaches are complained of as deep, whether the cause be deep or not. The only advantage gained is to emphasize those diffuse surface headaches, not reflex, where the pain and hyperesthesia do not follow any anatomical nerve area and therefore not having their origin either in the nerve or its nucleus, must rather have this in the higher centres where superficial pain is perceived. Such patients frequently use the same expression as reflex ones "When I brush my hair I can't bear the pain." The division of headaches into curable and uncurable is most fascinating and the more I live and try to learn the more I find myself drawn irresistibly towards this frank disposal of the whole subject. You will notice that in the classification that I am about to follow I have used the terms plus tension and minus tension headaches, and just so long as one does not forget the grave lesions capable of causing such pressure changes they might be used alone, arranging all headaches under one or other heading. This would lead to good therapy at least.

You will notice that the toxemic headaches are divided into two great sub-divisions, acute and chronic. Under the former are mentioned all pyrexial states and those rapid poison affairs such as diabetes of an acute composite character. This is done with intent, to mark the God sent message of warning and command to attack and control, if not abort the coma so frequently ushered in by headache in this disease. For the same reason I have mentioned the pre-septic headache in the puerperium. A slight headache and a rapid pulse in all toxemias should call for active measures. I have not placed acute alcoholic poisoning under this heading for as a rule no one so suffers. It is generally the morning after. The insidious slight headaches of chronic Bright's disease have been the cause of many a medical man's undoing. Over and over again the diagnosis has been made by the oculist after the patient has been knocked from medical-pillar to medical-post. Every one examines the urine, but the majority are after albumen and not casts or specific gravity, and they are generally satisfied with one examination. Of course they know better. We all know how frequently a urine fools us. I have seen a specimen of urine give no trace of albumen and only a stray cast here and there, two or three days before the patient entered his long last uraemic sleep. So the axiom should be, "In long continued headaches, test and retest the urine."

The headaches of gout are better known to the British graduate than the American and I grant you that the former is obsessed with the gout diagnostic habit; but he sometimes hits the nail on the head. The malarial headache should always be kept in mind especially during influenzal epidemics. It is very neuralgic in type and is frequently overlooked. A blood examination in all neuralgic headaches may lead to a very happy result; if you don't find malaria you may find anemia, both of which amend rapidly to treatment. A rheumatic origin to the headaches of childhood should always be kept in mind. When a "school pressure headache" fails to respond to visual correction, fresh air, iron, and rest, look for a rheumatic taint.

The man who ignores a syphilitic headache, however slight, should be sued for malpractice. It is absolutely criminal on his part. Headache is the most constant premonitory sign of brain syphilis; all others pale before its importance. Although the severest forms may lead to nothing, the mildest may

herald the approach of a grave intracranial lesion. As I have told you to think of Bright's disease when confronted with a headache that has resisted treatment so I tell you to think of syphilis. Therefore the axiom would better read "In all chronic headaches test and retest the urine thinking all the while of syphilis."

One is confronted nowadays with many sluggish livers and when linked with constipation they are frequently associated with recurrent headaches wrongly diagnosed as migraine. Such cases seldom have a neurotic history, and as a rule they increase in severity as age advances. They do not complain of visual phenomena nor is the pulse of high tension, and the relief gained from chologogues and salines is vastly more immediate than from coal tar and bromide preparations.

Notice is taken of cirrhotic liver headache for the reason that I have quite recently been greatly exercised over such a case. The head distress was profound and persistent. I question the advisability of placing it under this division for I have seen many a case of cirrhotic liver without headache. In the one that I have mentioned there was quite a high blood pressure no doubt toxic in origin.

Constipation headaches are seldom missed. The average physician worships at the shrine of the old adage "keep the bowels open and the mind easy" and again the patient will diagnose this for you. I have known cases with the gift of prophesy in this regard. They could foretell the coming of their autointoxication by the odor and character of the stool. A horoscopic stool, to say the least of it, is clinically interesting.

Gastro-intestinal headaches show up painfully the fallacy of classification for although toxemia plays an important causative role, many a nerveless man, filled to overflowing with putrefactive toxins, has passed smilingly through life without suffering a headache, while your gentle temperamental neurotic responds with agony to a minimum dose. The viscero-sensory reflex is indeed a mystery. Yet it is always wise to search for indican increase in the urine of those suffering from vague headaches, the presence of which would, in a measure, justify the control of those foodstuffs calculated to bring about putrefactive change. But here again we are confronted with an old saying "One man's food is another man's poison." What a wonderful advance in therapy would result if men would stop writing diet lists, out of diet books for dietic people, and take their line of action from this old adage.

The neuropathic headaches would alone exhaust the time of this paper. I have already laid stress upon the predisposing strength of neurosis in headache and I do not intend to rehash the signs and symptoms of migraine; all I desire to say is that typical migraine is much more neuropathic than reflex. There never was a true migraine without a neurosis behind it. Hunt long enough and you will find it. If it is only asthma, it is there. Its close analogy to epilepsy is the keynote to its phophylaxsis and proper treatment. Rid an environment of epileptic excitants and you will have migrainous attacks few and far between. Make a point of having your patients write out in their own words an attack and this truth will be vividly brought home to you. Here is one taken at random from my case records:

"My first intimation of a headache is that I see only half of an object. For instance, I may be looking at a face and suddenly the right side of the face is blotted out. I focus again and the left side of the face is blotted out, the right side coming into sight. This is followed by a tightness of the head as though iron bands were arranged Greek-fashion, beginning at the hinges of my jaw and extending over my head and under my head, through the throat and ligaments of my tongue. These bands are tightened and loosened seemingly by something at the hinges of my jaw, throbbing as with the beat of the heart. Then in the cords of the back of the neck comes the worst pain of all—more like a rheumatic pain—which makes you feel that you cannot hold up your head—yet when you lay it down the throbbing of the bands becomes more intense. I have burned my neck and the back of my head severely without realizing I was so doing. My neck, cheeks and ears are very cold; I am chilly and can only find partial relief in placing two hot bottles about my head and one at my feet—then lie down, well covered, for from four to eight hours.

My first sense of relief is the relapsing of the bands—then the pain at the back of the neck becomes less and less until I only have a tired feeling there, that I have felt on some occasions for a whole day after, though really not having pain.

My father suffered from these headaches; my oldest sister developed them at the age of eighteen and sometimes has them for five days without cessation. My second sister developed hers in her thirtieth year and I had my first one in my thirty-first year. We all suffer from cold extremities."

There can be little doubt that this patient suffered a spasm of her posterior cerebral artery, causing an anemia of its territory wherein lies the ½ vision centre and producing a true visual aura; the spasm being followed by a vascular engorgement producing the headache. One must admit that many recurrent headaches are not truly migrainous but at the same time have an analogous pathology to reflex epilepsy.

I have known a patient greatly relieved by the breaking down of pelvic adhesions. The operation was not done for this; I confess that I am not heroic enough to advise such a measure, but it came along as a justifiable procedure for the cure of other conditions. All I know is that the patient's headaches were cured for a long period of time.

We have at times been deeply interested in the cephalic sensations of neurasthenia, and however glibly we may use the term we have often been diagnostically puzzled by the sharply defined vertical and superior-curved-line headaches of these unfortunate people.

The epileptic headaches are too common for words and I have already enlarged upon "school pressure" headaches.

You will notice that I have placed the pre-menstrual headaches under the neuropathic division. There are no scalp areas associated with pelvic organs and if you are not satisfied with this such headaches are more hyperemic or congestive than reflex. At the beginning of this division you will observe that I have coined the term psychic faults. By this I desire to enclose all sexual and other neurasthenias so pitifully common in our practice. A detailed account of them is at all times delicate and frequently out of place. There are no drugs of consequence to be used in such conditions. Our schools do not teach us mental therapeutics and therefore our only hope of service lies in the endeavor to build a column of moral health upon a foundation of self-respect, true love, and religion.

The organic and circulatory headaches are self-evident. We cannot give them the time they deserve. I call your attention to indurative headaches which have been lately enlarged upon. A strange word comes before our notice during our reading and from that time on we meet it daily and wonder why we have never noticed it before. So it is with new clinical entities. We should therefore make ourselves familiar with this form and we no doubt will be surprised with the amount of material we will find to add to the better appreciation of this form of interesting headache.

Diagnosis. Such a thing as a positive diagnosis of the cause of headache is impossible. We must place the word provisional before all findings upon this subject. Unless a man can see with his eyes, feel with his hands, hear with his ears he cannot make a positive diagnosis in pure internal medicine. And to make even a provisional diagnosis of headache the case must be worked out to the last ditch. Throughout the telling of your patient's story you should study his psychology keeping in mind all the time that your chronic headache person has seen many doctors and this experience had no doubt developed his imagination and his vocabulary. Should you see him during an attack you should remember that pain is a very heavy traffic on a nerve fibre and that its impressions are summed up with great ease to the very height of agony; and that the severity of this summation of stimuli should be discounted in all highly strung neurotic people. If you find him walking about remember that the greater the pain the greater the prostration. Given two men with the same amount of headache say for five hours you will find one raving around like a mad thing, the other sullen but sensible. In other words don't be misled by temperament. Try not to over—or under—estimate subjective states by objective signs.

Pay particular attention to the position of your patient. If you find him all flexed-up in bed he is suffering intensely. Remember that a sitting position creates a greater blood pressure than a standing one, and a lying down one greater than a sitting one. You will therefore generally find an anemic headache either sitting or lying down and when you ask him to stand up his pain will increase and he will immediately seek the chair or bed again. Should such a patient be in agony you will frequently find him on his hands and knees and his head buried in the pillows. On the other hand a congestive headache desires to stand supported or be propped up with pillows. Then again there are the positions of head and body in cerebral tumor all well known to you.

Don't let the books fool you. They flatter migraine when they say it is a malady of clever people; I have seen many a stupid person so suffer. Make diagnostic capital by your therapeutic mistakes. If you have given, say ergot one day and your patient returns complaining give him nitroglycerin the next. This is quite honest. No one can truly tell the intracranial pressure from the radial or other pulse. I have seen pale-faced people do better on ergot than nitrites.

Note the effect of percussion and pressure and the maximal point of both and then discount it. If you have ever suffered an acute headache you are in a position to very forcefully state your opinion of the medical man who hammers your head in the effort to diagnose your condition. Note the position of pain, whether it be vertical, frontal, parietal or what not, and then discourage the tendency to diagnose from such findings. Suppose a patient has an intra-cranial tumor and you see him comparatively well on with this lesion. He has up to the time of your examination suffered only general symptoms—headache, vomiting, vertigo, optic changes—and then appear what might be called late local signs. Realize that they may be false localizing signs on account of the relative frequency with which local signs are due to meningitis, hydrocephalus, local spreading of inflammation of the brain substance, edema, etc. Again, true localizing signs at one time present may later become concealed or undemonstrable owing to the development of other signs and therefore if a case comes under observation late however many the signs may be it becomes well nigh impossible to diagnose the site of the tumor.

Doctor Franklin no doubt considers Desdemona a fine diagnostician for she answered Othello when he said "I have a pain upon my forehead" with "Faith that's from watching."

Doctor Franklin will also tell you all about truly reflex headaches and the necessity of careful examination of all the special senses. The classic case that had here hemicrania first on one side and then on the other and was found to be possessed of a bad tooth on one side and a visual error on the other keeps me at all times alert to this necessity. When one realizes that there are cases of brain trouble on record that only showed bodily pain and no headache for example, "tearing pain of half the body with motor weakness—lesion the external nucleus of the thalamus." "Severe right sided body pain for years with right sided motor weakness with involuntary movements of right hand and leg, only slight hyperesthesia and tactural localization, temperature and muscle senses all unimpaired, lesion a pea-sized cyst middle and posterior third of left thalamus," one then knows the hopelessness of definite diagnosis in neurology. It would be utterly impossible for

any man to take up each and every disease mentioned in this paper and give each its diagnostic points.

The family history of all chronic headaches must be worked out with an ability of a Sherlock Holmes. Always start the physical examination with the system you consider most likely *not* to be at fault and you will be surprised to find how frequently you have been in error.

Be particularly careful with hyperesthetic, hyperalgesic and hyper-thermo-esthesic areas. Map them out with exactitude and refer them to their appropriate spinal segments. Use the ophthalmoscope as you would the stethoscope in carditis or the laryngoscope in laryngitis or the knife in surgery. But this must suffice.

Treatment. Remove the cause if you can. I never felt so grateful to a sentence before. It cuts the subject matter of this heading in half. Pardon me if I cut it still more with short therapeutic axioms.

1. A headache in acute composite diabetes calls for an increase in carbohydrates, huge doses of alkalies and a daily estimation of the acetone bodies and ammonia in the urine.

2. In all specific infectious fevers, increase the heat loss, diminish the heat production, and control the heat regulating center by attacking the toxemia.

3. A severe headache controls if not stops the secretion and absorption of the stomach. Therefore when magic coal tar remedies are given at the height of the pain they are of little use, and this accounts for their negative and positive action. A hypodermic of morphine is the only sure method under such circumstances.

4. As a rule all bromides are given in too small a dose.

5. The headaches of gout frequently disappear during pyrexia. The same applies frequently to tuberculosis.

6. The seton of old had its value in causing temperature and counter-irritation.

7. Nitroglycerin is useful in all plus tension headaches.

8. Ergot is useful in all congestive headaches.

9. Gouty headaches are best treated by sodium salicylate in large doses, vegetables and alkalies.

10. Aromatic spirits of ammonia is the best alkali in acid dyspepsia headaches.

11. The sipping of cold water will give transient relief in minus tension headaches. It raises the blood pressure.

12. All low pressure headaches are relieved by cardiac stimulants—caffein, aromatic spirits of ammonia, etc.

13. The headaches of old age are best treated by epsom salts.

14. Headaches with heart hurry are very frequently relieved by drinking strong tea. Caffein is the best minus tension headache cure we have.

15. Ammonium chlorid should always be given very well diluted.

16. Alkalies hold an important place in all headache mixtures.

17. High grades of arterio-sclerosis increase the severity of all headaches, whatever their cause may be; therefore treat with iodid of potassium between the attacks.

18. Treat all neuropathic headaches as you would epilepsy.

THE EYE AS A CAUSATIVE FACTOR IN CHRONIC HEADACHES WITH REFERENCE TO THE EAR, NOSE AND THROAT.*

By WALTER SCOTT FRANKLIN, M. D., San Francisco.

To modern ophthalmology belongs the achievement of recognizing reflex results of eye strain and connecting the visual apparatus with the body in general. Asthenopia was described in the seventeenth and eighteenth centuries, but the underlying cause, the refractive error, was not recognized and the condition went unrelieved. Donders of Utrecht, in his "Anomalies of Refraction and Accommodation" paved the way in 1858 and the application of retinoscopy furthered our knowledge of the subject. The earlier writers also recognized a true squint and conditions where the eyes were generally not straight, but an insufficiency of the muscles, a tendency of the eyes to turn either in or out, up or down, was not known. To von Graefe belongs the renown of calling attention to this subject.

Errors of refraction were recognized by the Greeks and Egyptians, but only as regards diminished vision. Numerous references to lenses are in the early writings and in the days of Rome, Cæsar is reputed as having viewed the arena through a crystal.

American and English writers deserve a large part of the credit for having connected refractive errors with reflex neuroses, and Dr. William Thompson in 1879, in a paper entitled, "Astigmatism as a Cause for Persistent Headache and Other Nervous Symptoms," applied the physiological teachings of Donders in an attempt to rectify these obscure cases of headache by the correction of ocular errors.

S. Weir Mitchell, in the early seventies, stirred the profession by his writings on this subject, and one may look upon that date as the beginning of a plethora of papers regarding eye strain.

To-day it is universally admitted that in all cases of chronic headache where the etiological factor of the same has not been brought out, the state of the refraction and muscular balance of the eyes should be inquired into. The mistake is made in medicine, as in other walks of life, of underestimating causative factors that may be in the minority. Unfortunately the refraction as a cause of headaches has been too highly exploited, with the result that some practitioners have looked for a cure of this condition in a large number of cases that were without the category. This gave a small percentage of successes,

* Read before the San Francisco County Medical Society, May, 1909.

considering the number of cases referred to the ophthalmologist, with the inevitable result that the pendulum has swung the other way, and to-day numerous sufferers from chronic headaches continue unrelieved through the failure of submitting to a proper examination of the eyes.

Specialism in medicine has been accused, and I think rightly so, of a narrow groove and seeing but its own side of the subject, and the eye surgeon is no exception to the rule. A patient presenting himself with a history of chronic headaches should not be referred to the ophthalmologist until his physical condition has been thoroughly gone into without eliciting the cause of the trouble. A few cases are so palpably due to the eyes that looking for another probable cause would be but time wasted.

One must remember that the eyes are the most used and abused of the special organs; in fact, the mere presence of light and its interpretation, is work done. From the moment we awaken until we close our eyes in sleep the retinæ are functionating, and this accounts for the large percentage of eye strain headaches in contradistinction to the large number of other conditions of a misbalanced and abused organ producing no apparent reaction.

In following the evolution of the eyes through the various stages of animal development, and, in fact, through the stages of mankind we notice near work—that is, work done requiring the focusing of our eyes on a close object—is artificial and, what is more, our eyes were never intended for the amount of such work that present civilization requires of them. The savage looks into the distance for a foe or food and does but a small amount of close work, and that under good conditions, inasmuch as he does no work with artificial illumination. The result is a relative freedom from ocular errors. Our present civilization has produced and is producing an increasing number of refractive errors, and the end is close to blindness unless ocular hygiene and compulsory ocular rest are enforced.

The condition of myopia, nearsightedness, is purely of artificial production with an hereditary predisposition in some instances. All babies are born with a short eye, that is, a hyperopic state of refraction. When the eyes are used in early education or if an anomalous condition of the ocular muscles exists in relation to the eye or to the orbit, the distortion in their shape begins and astigmatism and refractive errors are formed.

Cases of acute headache will not be considered by me, for if the eyes are the cause of the condition they will be inflamed and show objective changes that are definite.

In chronic headache some patients give a history that is so certain that the condition can be connected with the eyes without further research. If the headache comes on during the day or is increased by the use of the eyes, or if close application alone produces the pain, no hesitancy should exist in the examiner's mind in examining the refraction and muscular balance of such a patient. Again, the patient may have noticed the connection between the headache and the use of the eyes, but in that event usually goes direct to the ophthalmologist.

With the exception of inflammatory changes within the interior of the eye, but one condition, other than errors of refraction or muscular imbalance, can produce a chronic headache and not show macroscopical changes to the untrained observer. I refer to chronic simple glaucoma. Here a patient will complain of pain, will not give any definite clew to the physician which will connect the trouble directly with the eyes, but will complain of chronic headache that may be located anywhere about the head. An examination of the globe will show changes in the cornea, depth of the anterior chamber and the ophthalmoscopic examination will bring to light the cupping of the nerve head. Added to this we have increased tension of the eyeball. Hence, in every case at least, the tension of the globe should be determined, and if at all suspicious, a careful examination for chronic simple glaucoma made.

If the headache is due to disease of the fundus of the eye, sufficient data from interference with sight, distortion of objects or flashes or changes in light will call the patient's attention to the eyes.

The estimation of the refraction is one of the most difficult procedures in ophthalmology and is usually poorly done. It is left to the beginners in large clinics and to the assistants of men having large practices. Most oculists consider the work as tedious and uninteresting, which, added to the fact that it is underpaid, accounts for the slovenly and incorrect manner of its accomplishment. We have to contend with the opticians and street venders who, in America, refract more patients than the profession.

The eye is eliminated as the cause of the trouble and the patient returns to the physician only to submit to another thorough examination with the routine drug and hygienic treatment, and not finding result will wander elsewhere. After the next examination the physician will again refer the patient for an examination of the eyes, but will be told that the eyes have been thoroughly examined, without proving to be the source of the trouble. Thus he is kept from determining the true source of his headache until some practitioner with previous experience in this direction will again counsel an examination of his eyes, with a result that is positive.

When you pause to consider that an eye having but a small error of refraction will accommodate itself to this condition and see perfectly, you have the key to the situation. Generally these are the cases that produce the neuroses, for Nature in her effort to correct the trouble, causes the eye to overtax itself with a resultant reflex of function, a neurosis, here considered as pain. If the error is large, Nature cannot overcome the deficiency, the eyes can not obtain normal vision unaided, and the individual is spared the overtaxing of the organ. He suffers from loss of sight, but has no reflex neuroses, and it is optional with him whether he should wear glasses or not.

Now, since you are dealing with an eye that has good vision, most likely normal vision, and is ob-

taining said vision by virtue of its own muscular contractions, it is evident that to obtain its refraction those muscular contractions must be temporarily suspended; a cycloplegic must be employed.

The ophthalmologist with a mathematical training and those recognized as good refractionists are united in saying that small errors cannot be brought out without complete suspension of the accommodation. They differ somewhat as to the choice of the drug and in the minuter methods of its application, but are one in recommending its use. This portion of medicine approaches an exact science more nearly than any other and the last word should have been said. Hence I cannot too vehemently condemn the publication of an article in a recent issue of the *Journal of the American Medical Association* by Dr. Roosa of New York, in which he speaks of refraction lightly and contends that it is simple and does not require the use of a cycloplegic. Such a man does incalculable harm to the profession, for while those who know his standing as a refractionist are not biased by his statements, the general practitioner, judging his worth by the positions he holds, is misled into underestimating the worth of the examination. It is unfortunate that a medical censor cannot reject articles aimed at overthrowing proven and established medical facts.

In private practice atropin is employed when the patient is under fifteen years of age, and if over, homatropin is used. The detail of the administration determines the effect and whether complete and reliable paralysis of the accommodation will result. Notwithstanding most careful directions, the average patient will not get drops into the eyes. About one out of four instillations succeeds in entering the eye. It is necessary for the refractionist to superintend personally the final application of the drug.

Having obtained satisfactory cycloplegia, and the mere dilation of the pupil is not sufficient; I maintain that smaller errors cannot be brought out by the use of the trial case alone. It is necessary that retinoscopy be used.

The other condition in the eyes which produces chronic headache is a state of imbalance or relative difference in power of the various extra-ocular muscles. If we look into the anatomy and physiology of but one eye, with no reference to its fellow, we are impressed with the complexity of its possible movements and the diverse innervation of the ocular muscles. If one eye is complex, the two considered together are many times more than doubly so. The associated movements of the globes is one of the most beautiful instances of correlated action in our economy. It is not difficult to see that if one muscle lags behind or oversteps its associated fellow, an extra nerve stimulus will be required in order to obtain parallel motion of the two eyes. This is just the condition which confronts us here. A typical divergence or convergence of the eyes that is a strabismus, does not necessarily cause the patient any reflex neurosis, as the eye which deviates will in time either diminish in sight or become practically blind, thus being disregarded and not taken into account. Such a patient has only monocular sight, but no pain. It is the latent errors as mentioned above, these conditions which do not show as squint which cause the trouble. Hence, a more careful examination of the muscular apparatus, both in regard to the individual motility and strength, and in regard to the associations through the fellow eye, is indicated.

The above conditions can be remedied, and prove the prescribing of lenses as the most exact therapeutic remedy in the realm of medicine.

If headaches are due to the eyes, the mere wearing of lenses will not immediately cause a cessation of the pain. The patient must learn to relax his abused muscles and allow the glasses to do the extra work. As this is not likely, and especially if the lenses prescribed are the full amount of the error, it is usually not possible to judge of the result for two, three or possibly six weeks.

Added to the wearing of the correction, the patient must rest his eyes frequently, and closing them a number of times during the day, if for only five minutes at a time, is more beneficial than one long period of rest.

In résumé, I may say that with the exception of those few cases in which the headache is palpably connected with the use of the eyes, the only way possible to find if the eyes are the cause of the trouble is through the therapeutic test of wearing proper correcting lenses.

While the large majority of headaches from a reflex head condition can be attributed to the eyes, the ears, nose, mouth or throat contribute a portion.

In obscure cases these organs must be carefully examined. When one considers the important role played by the nose in warming, filtering and moistening air, it is not difficult to connect any interference with these physiological qualities and changes in the blood with resultant stuffy headache. Chronic nasal catarrh, and this condition is usually but a symptom of some obstructive inflammatory focus, causes a large number of headaches. The nose should be examined under varying conditions in order to determine the amount of obstruction.

The region of the middle turbinate is particularly prone toward producing reflex headaches and pressure from a deviated septum or spur exerted on this organ accounts for many an obscure case. In these examinations the mucous membrane should be contracted with adrenalin and the depth of the canals fully exposed often bringing to light a ridge or spur which by constant pressure is the source of the trouble.

All forms of nasal stenosis, or atrophic rhinitis may reflexly or rather indirectly cause headache.

Some of the most baffling cases of chronic headache are produced by inflammations of the accessory sinuses and in order of frequency the frontal, anterior-ethmoidal, sphenoidal and lastly maxillary may be noted.

In certain sinus affections the symptoms referable to the nose may not be taken into account, the patient complaining of chronic headache, but not mentioning what he considers a mild nasal catarrh.

I have seen a case in which the frontal sinus was proven as the source of the attacks merely by systematic examination. The symptoms were by no means characteristic of frontal sinusitis and the diagnosis was made by elimination only. If the pain is located permanently over one sinus, and if tenderness and pressure exist, no difficulty would be encountered in considering it the source of the headache but unfortunately in medicine atypical cases seem more the rule than real typical ones. Even though one frontal sinus may be affected the pain will often seem bilateral. It is not my intention to go into the diagnosis of nasal lesions but to emphasize the fact that in stubborn cases one must look for disease and not expect classical symptoms to point out the trouble.

Chronic empyema of the ethmoidal cells produces a number of cases of hidden headache and this region must be carefully examined. The sphenoidal sinus though comparatively inaccessible must not be overlooked if the headache is a difficult of placing.

Adenoids are sufficient in number of cases to produce a chronic headache, both as a direct neurosis or indirectly through resultant nasal catarrh and obstruction. In a like manner epipharyngeal catarrh and enlargement of the posterior ends of the turbinated bodies must be looked for.

All of the above enumerated conditions may cause inflammation of the eustachian tubes with a catarrhal process sufficient to interfere with its patency. This will give a stuffy headache mechanically through the difference in air pressure on the two sides of the ear drum.

If the ear is discharging it should not be overlooked, as inadequate drainage or the presence of polypi, etc., may be the source of the trouble. But here again the physician's or patient's attention will be called to the offending part so no difficulty should exist in having such an organ examined.

Chronic disease of the tonsils will cause headache indirectly either through its effect on the economy in general or through acting as a focus for local inflammation of the mucous membrane of throat and nose. The crypts should be exposed thoroughly and condition noted.

A cavity in a tooth very often causes pain that the patient cannot distinguish from a chronic headache hence an examination of the teeth is indicated in all obstinate cases. The cavity may be absolutely hidden, that is, within the substance of the tooth without a visible outlet and under such conditions one can see readily the difficulty encountered. The teeth must be transilluminated and minutely scrutinized.

To recapitulate. The eyes are the cause of many cases of chronic headaches. The character of the pain, its occurrence and position give some clew to the causative agent but not certain evidence, hence the eyes must be examined in all cases of chronic headache in which the cause of the trouble has not been ascertained.

A cursory examination of the refraction is not alone not sufficient, but often misleading. A cycloplegic must be used and retinoscopy employed.

Having found a small error of refraction it may be necessary for the patient to become thoroughly accustomed to the correcting lenses before making certain of the role that the eyes play in that particular case.

The nose, throat, including the teeth, and ear produce certain cases of chronic headache and should not be overlooked.

The accessory sinuses, especially the frontal and ethmoidal, are most prone to be the cause of the trouble.

Evidence of sinus involvement must be looked for as the objective signs may be very obscure and the subjective one noticed may be limited to pain.

Discussion.

Doctor D'Arcy Power: There is one point to which I would like to draw attention, which may be of some importance in the matter of treatment. The general principle of treatment of headache, as has been well stated in the papers, is to eliminate the cause. But those who have been unfortunate enough to be sufferers, know that when they have a headache they want relief. I take it that the general statement is true, that so far as the immediate pain from the headache is concernde, it is due in most cases to a condition of vaso-motor ataxy in the brain itself. There are certain areas of the brain in which the vessels are in a condition of relaxation or contraction, or these conditions coexist. It has been well said by Doctor Shiels that headache is largely due to a fundamentally neuropathic diathesis and that being the case there is a greater tendency for such patients to react more strongly to nerve stimulants than ordinary men; therefore I would draw attention to the value of direct applications of strong stimulants to the skin or other sensory organs during the attack. Experiments long ago served to show that either hot or cold water directly applied to the scalp of a dog brought about contraction of the underlying vessels of the brain which shows that we thus have means for the control of these vessels, and the use of hot or cold suddenly applied, or the application of a mustard plaster have real value and are based on a correct physiological principle. So also the stimulation of the Schneiderian membrane by the use of ammonia will often give immediate effect. To be of value it must be very strong, but the cure is often complete.

Doctor Rene Bine: There is little to add to the subject from the general standpoint, but I would like to emphasize the need of taking a very careful history, which is as important almost as the thorough examination of the patient. We are all apt to be too ready to prescribe drugs for the symptom—headache—without investigating the condition as carefully as we might. To be true, most frequently a careful search for organic disease is made in vain, but I believe that a systematic examination might often show that a trivial headache has some serious cause underlying it. This fact was very forcibly brought home to me several years ago, when I saw a hospital nurse who had been given drugs for a headache attributed to a menstrual condition. Having entered the institution but a few days before, and wishing to remain on duty, at first she did not complain. But the pain increasing, the physician who was asked to see her, ordered her to bed and prescribed "antikamnia." The first day she took 40 grains, the second again 40 grains, and on the third 30 grains besides some other coal tar preparation. At 4 p. m. that day complaining to her roommate that the pain was worse, the nurse went to call the physician. On their return the patient was found unconscious, cyanotic and not breathing.

Every known method was used in a futile attempt to revive the patient, but after 18 hours of artificial respiration, the heart had stopped beating. In spite of the fact that drug poisoning seemed to have caused the death, a careful inquiry revealed some important facts. Her sister said that the patient had suffered from headaches frequently even as a child, without there being any apparent cause. An autopsy was obtained, and a large chronic internal hydrocephalus was found, due, in all probability, to a meningeal affection in childhood having occluded the foramen of Magendie. A careful examination at the onset of the patient's symptoms should have revealed signs of intercranial pressure.

Doctor Shiels, closing: I agree with Doctor Power with regard to the efficiency of strong aromatic spirits of ammonia in the relief of headache. I look upon it as a surprise stimulant. As far as a working classification is concerned, that is a matter for the individual to decide and we always find patients grateful for the cure of headache whether this be done by a physician or a next door neighbor. When I give a purge I do not hold out a definite promise that I shall cure their headaches. I try to remove any reflex cause without explanation, for headaches are, as a rule, composite in character and hard to cure. Doctor Bine makes a strong point in the necessity for careful history taking and his interesting case proves this without a doubt. The use of the ophthalmoscope is all important in the diagnosis. The popular use of coal tar preparations is much to be deplored. We should treat headache people with caution.

A REPORT OF SEVERAL CASES OF NEPHRITIS WITH UNUSUAL FEATURES.*

By CHARLES R. HARRY, M. D., Stockton.

These cases are interesting from the fact that, although the patients were all comatose before they died, none of them had any muscular twitching or convulsions. There are also some other unusual features connected with the cases.

Case 1.—Male. Age 36. Came to my office October 10th. Complained of more or less gastric distress after eating, some shortness of breath on exertion, gradual failure of sight and weakness. Very nervous. Had lost 44 pounds in last three or four months. Present weight, 186 pounds. Physical examination—Slightly jaundiced; arteries atheromatous. Pulse 100, regular in rhythm but not strong. Temperature normal, systolic murmur at pulmonary site, also over aorta. Urine normal in quantity, but contained albumen and casts. Patient was put on a diet of easily digested liquid and soft solid food. A mixture of bismuth, also strychnia and digitalis and one-minim doses of 1% nitro-glycerin were given internally. Patient improved until November 21st. I was called to his home. Found that he had eaten some very indigestible food. He was troubled with a great deal of gas in the stomach, was very short of breath and excessively nervous. Quantity of urine still normal. Patient was put to bed and only liquid food allowed.

Strychnia, digitalis and nitro-glycerin were prescribed. Under this treatment the gastric symptoms and shortness of breath subsided. The urine, however, gradually decreased in quantity until he passed only about a pint in twenty-four hours. The nervousness increased and he became hysterical at times, crying and declaring he was never going to get well. The urine became greatly diminished in quantity, averaging from 7 to 14 ounces in twenty-four hours, in spite of the use of diuretics, large quantities of water and sweats. He soon became delirious and remained in this condition four days. At times the nurses were unable to keep him in bed. There was no twitching or convulsions. About forty-eight hours before he died he became comatose and remained so until his death, December 10th.

Case 2.—Male. Age 44. Came under my care June 14, 1908. Complained of weakness, shortness of breath on exertion, very rapid heart action and indigestion. Very nervous man and indiscreet in his diet. Lost considerable in weight during last three months.

Pulse 132-136, high tension. Systolic murmur at mitral valve; apex beat one inch to left of mammary line. Urine contained albumen and casts, quantity about normal. Patient was put on a strict diet. Bromides given to quiet the rapid heart action and relieve nervousness and iron for the anemia. Large quantities of water were also advised, together with laxatives. Patient improved for a time; pulse came down to 96-108, shortness of breath not bad so long as he would keep quiet. Still felt very weak, but would not go to bed and at times would not adhere to the diet prescribed. About November 11th was taken with a severe attack of indigestion, due to indiscretion in diet.

Heart and kidneys both became worse after this. Was unable to sleep without hypnotics. Urine became very scanty and was loaded with albumen. November 24th was slightly delirious, but there was no twitching. The delirium gradually increased until he became very violent. This continued until November 26th, when coma developed, and he remained in this condition until he died, November 27th.

Case 3.—Female. Age 43. Was confined at full term December 27th. Labor was very tedious and a high forceps delivery was performed. During pregnancy no albumen was found in the urine and the quantity was always about normal.

Convalescence was uninterrupted until January 1st, when she had a little rise of temperature. The quantity of urine, however, was normal and no albumen was present. Uterus was washed out and her temperature came down to normal. As the patient lived twelve miles out in the country, I did not see her every day. January 3d I was sent for, as the nurse stated she had not passed urine since 11 a. m., January 2d. I arrived at 2 p. m., used a catheter, and to my surprise only drew off one dram of urine. This represented the secretion for twenty-seven hours. She felt quite comfortable, however, excepting a little nervous.

There was no headache, twitching or other uremic symptoms. She was immediately brought to St. Joseph's Hospital, and, in spite of profuse sweats, large quantities of water and diuretics, the urine did not increase much. She was catheterized every six hours, as she could not pass water naturally, and only from one to three drams removed at a time. The quantity of urine secreted would only average from ½ to 1 ounce for each twenty-four hours. It was loaded with albumen. Patient felt rather nervous and had an ulceration of the gums, but no twitching at all.

In the evening, became slightly delirious and a complete hemiplegia of the left side developed. She became comatose soon after this and died the following forenoon.

This case is remarkable from the fact that she lived six days with a total secretion during that time of only four to six ounces of urine. She was perfectly conscious until the night before she died and did not complain of anything except the soreness of her gums from the ulceration.

Case 4.—Male. Age 52. Commenced treatment about November 15th. Troubled with shortness of breath and sleepiness. If he sat down in a chair, even in the daytime, he would go to sleep in a few minutes. Puffiness under the eyes; very fat, weight

*Read before the San Joaquin Valley Medical Association, 1909.

260 pounds. Pulse rapid and not very strong, heart tones clear; edema of legs. Urine scanty, but no albumen could be found after several examinations. No examination was made for casts.

I put him on digitaline gr. 1/5 and strychnia gr. 1/30 ever six hours. Also diuretine grs. xv every four hours and a strict diet. His urine increased in a short time to over three quarts in twenty-four hours. Shortness of breath gradually lessened and the sleepy feeling was much less. Weight decreased gradually. Lost over 30 pounds in two months' time and felt much stronger than when he commenced treatment.

On the afternoon of January 23d was taken with a severe attack of appendicitis. I was not called until about noon January 24th. After examining him an operation was recommended if he was not better in a short time. I saw him again at 5 p. m. and he was much worse, so advised an immediate operation. Pulse at this time was 130, temp. 103.5°. Urine was not examined. He was removed at once to St. Joseph's Home and prepared for the operation, which was performed early in the evening. The appendix was gangrenous; it had already perforated and a large abscess had formed. The abscess cavity was swabbed out and pieces of the gangrenous appendix were removed with forceps. The cavity was packed with gauze and the patient removed to his bed.

Pulse 148 after the operation. Monday noon his pulse was 94, temp. 101.8°. A pint of normal salt solution was administered per rectum every four hours. The quantity of urine kept up until late Monday afternoon, when it became scanty and contained a great deal of albumen. Temp. 104.2°, pulse 116. From 11' p. m. Monday until 7 a. m. Tuesday (56 hours) he secreted 14½ ounces of urine, although diaphoretics, diuretics and large quantities of water were given. During the time there was no twitching or convulsions.

Patient became delirious Wednesday night and died in coma the next morning.

VISIBLE MOVEMENT OF BLOOD IN RETINAL VESSELS.

By C. S. G. NAGEL, M. D., San Francisco, Instructor in Ophthalmology University of California.

Movement of the blood in retinal vessels had been observed in the early days of ophthalmoscopy in a few instances by Ed. Jaeger, Liebreich and von Graefe in local changes, i. e., detachment of retina and in a case of "neuritis"—also by V. Graefe several times in the asphyctic stage of cholera. Subsequently the phenomenon has repeatedly been reported in cases of so-called embolism of the central retinal artery, in a majority of which, according to our present knowledge, it has probably been due to a local endarteritis proliferans. In the Deutsche Medicin. Wochenschr. No. 45, 1908, Th. Rehberg gives the extensive history of a case of aortic aneurysma, observed at the University Medical Clinic of Koenigsberg, making the following statement regarding the eyes—"Vision somewhat lowered in right eye, F. V. normal in both. The retinal veins are relatively large compared to the arteries; the bloodstream, especially in the veins of the right eye, is markedly retarded and plainly visible, the blood column being divided into pieces of a varying size, i. e. from big granules to cylinders, which are separated by light interspaces."

From the literature at my disposal (there is also no reference in the literature given by Groenouw Zusammenhang von Augen—U. Allgemein—Krankheiten in Graefe—Saemisch, 2nd ed.) and the fact that Leber (1) in his exhaustive study passing in review all experimental and clinical data extant does not mention any similar observation, I believe Rehberg's to be the first observation of the kind, and I feel justified therefore in reporting a similar, regarding the eyes though much worse, history which I have been able to follow (October-December, 1908) in my service at the University of California Hospital. Doctor Moffitt has demonstrated the patient from the medical side before the San Francisco County Medical Society. I will only give the data in so far as they would seem to be of special interest here.

J. H., ironmolder, age 29. No previous illness. November 1907, during work, sudden sensation of jumping of eyes out of head and dizziness. Gradually getting worse with pain in eyes and sensation of blood trying to rush through skull and attacks of roaring in ears. Sight gradually had been failing in both eyes, until July, 1908, permanent blindness set in in right—sight having been hazy for one day, it had gone out next morning entirely. Patient has been hoarse since March, 1908, suffered frequently from frontal headache, and at times the top of scalp seems numb. Sight has persisted in left eye, but has acted in general as in right. At present (October, 1908) it is very bad, hazy. Patient becomes blind in attempt to cross room. Spending his time in bed whilst in the hospital, patient sees best in sitting posture with head bent forward, sight getting dim and leaving entirely at times if he leans backwards or even lifts head merely, but returns promptly on lowering head again. The temporal, facial, carotic, subclavian and radial pulses are absent on both sides, the brachial and ulnar present on either side, but weak. The femoral pulses are present and those at the dorsum pedis, right and left are strong. Reflexes are normal, and so are sensations, though pinching of the skin anywhere seems to be very painful. Left side of skull very dull, especially over parieto-occipital region. Tenderness over left parietal eminence. Frequent clots of blood in right nostril since beginning of illness. Left vocal cord at first moving less than right, has become paralyzed during stay at hospital (examined by Doctor Albert B. McKee). Trigemini in sensory and motor portions intact, corneal reflexes prompt. Facial nerves intact. Blood pressure on legs October 7, maximum 220, minimum 160; October 12, 218; November 21, with Esmarch's on other leg, maximum 150, minimum 125, without Esmarch's 130 and 105. Patient had referred to occasional attacks of general convulsions with loss of consciousness and it was found that pressure on both carotids for about thirty seconds produces deep, noisy breathing with pallor of face and finally twitchings of face and arms, especially on right side. With twitching comes loss of consciousness, patient falls forward and respiration stops for a few seconds. Face then begins to flush and consciousness returns. On November 13, whilst rising in bed, patient had momentary loss of consciousness with slight, but regular, epileptic attack.

Diagnosis by percussion, etc., and Roentgenogram: aneurysma aortae. Owing to the general condition of the patient, etc., the examination of his eyes is not as complete as might be wished for, especially re. c. vis., F. V., etc.; however, I feel satisfied that the essential diagnostic features were obtained through the ophthalmoscope. The tension of both eyes is decidedly lowered (T-I). Right eye amavrotic. October 8, 1900, optical atrophy with rather indistinct outline—the vessels, however, being normal in size, especially arteries not contracted, the evidence does not point to a distinct neuritis preceding. There are retinal changes close to disk towards macula, also upwards—and since analogous, though more recent changes in left eye are also confined near posterior pole, the process in right may be, perhaps, looked upon as a secondary, ascending atrophy of nerve.

O. S. Around posterior pole, though macula itself appears free, a number of recent degenerative changes in retina *under* vessels. *Over* main v. temporal inferior two distinct roundish plaques of exudate.

7. X. 08. In main branch of v. temporal inferior o. s. a slow interrupted centripetal stream is observable, the blood column is divided into segments. This phenomenon is confined to the one vessel and to o. s.

9. X. In the vein first affected the segments are longer, moving forward in a slow and jerky way. The same appearance as shown on 7th inst. by this vein is offered to-day by the v. inferior nasal, and beginning in the other bigger veins, perhaps also in some of the smaller ones. Several of the big veins, universally broader, show a relatively smaller caliber at and near disk than some distance off. Disk somewhat pale as one would expect from the poor general arterial circulation.

16. X. The current in veins is very slow, at times ceasing. The phenomenon is seen to-day in one vein o. d.

21. X. No current visible in either fundus. Rosary appearance of affected veins.

2. XI. No visible current in either eye.—O. s. shows rosary appearance of lower veins, which are universally smaller, though still extended near pa. Arteries also are a little smaller.

The patient, who had left the hospital in December last, was seen April 8th, a. cr. strikingly improved in general health (increased weight).

Patient makes no complaint regarding left eye. Vision H m + 0.75 = 1.25] J. I in O, 24 m, p. pr. O, 16 m. L. F. V. normal for white and colors, no central scotoma. T normal. L Pu normal and reaction n. Ophthalmoscopic. n. (especially arteries n.).

Right eye T n. Fundus n. outside of atrophic pa. which is now quite sharply outlined. The arteries in the fundus are everywhere decidedly large and of the same size as the veins, which are not enlarged. On the art. temp. sup. (only!) which, in spite of a main branch running in the same direction, is of the same size as the one accompanying vein an unusually broad and intensely white central band (reflex from a thickened wall?) is present, no white lines alongside of vessel (under mydriasis).

As a purely physical phenomenon, there is no reason not to adopt in our case the explanation for the visible bloodstream given by Reimar (2). If the blood flows normally the red corpuscles are whirled about so violently and carried off with such rapidity that on account of their smallness they cannot be made out. With decreasing velocity of the current the individual corpuscles become noticeable at first merely as smallest particles quickly shooting past. Gradually these particles, as a result of sedimentation and agglutination, increase with greater slowness of movement until we finally notice little cylinders separated by plasma. This last stage may perhaps best be compared after Dimmer (X) to the quicksilver torn to pieces in a thermometer, only that in our case cylinders, but of universally rather uniform size, came under observation. Omitting Reimar's closer argumentation, I will only add that Reimar was able to produce experimentally the several stages as referred to by pressure on the globe until he finally got a centripetal stream in the arteries—this being always the last of the changes that begin in the veins with minute particles flowing in normal centripetal direction. The clinical importance of these phenomena lies in this "that blood circulation does take place as long as the blood columns, be they ever so thin in parts, or be covered (apparently interrupted) by thickening or clouding of walls, don't show in their farther continuity disintegration—i. e., agglutination of the formed elements. Only when the blood column is broken up and the individual segments are at a standstill is one justified to surmise a complete interruption of the blood current. Absence of spontaneous or pressure pulsation is absolutely not a sign that circulation does not take place."

That the circulation in the upper part of the body and in the head was being interfered with greatly is clear from the absence of the several pulses mentioned, further by the lowered T in the eyes which according to Leber (l. c. 118) can never be higher than the blood pressure within the eye, by which alone it is produced—and finally by the epileptiform attacks. Regarding the latter Rehberg (l. c.) reviews the literature regarding experimental and clinical data in aortic aneurysm all being in favor of the cerebral symptoms being due to anaemia through mechanical interference with the circulation and not through excitation of the vagus. It is in regard to the additional ophthalmoscopic findings, I think, that the chief special interest of our history lies. Leber's (l. c.) studies in their analysis of facts from human pathology as well as experimental have reference to complete obliteration of the circulation exclusively. Regarding clinical data Leber also considers the reestablishment of circulation after the complete block in the narrowed vessels, stating expressly that the latter is a permanent feature. We have seen that at no time an arterial contraction has been found in our case and that, as a noteworthy feature, an enlargement even of retinal arteries was found in the blind right eye at the last examination. Look-

ing upon this latter feature as of nervous origin we must yet refrain from trying to enlarge upon it in the face of the many contradictory facts found in experimental work to which Leber refers so exhaustively and judicially. The further changes we have found in the retinal (whitish plaques, etc.) bring a clinical confirmation for Leber's findings and are of special interest in so far as they show the deleterious effects of a diminished blood supply even. The reason why this was sufficient to lead to atrophy of the optic nerve in the right eye would seem to lie in the great dependance of the retinal ganglion cells on the supply of oxygen (in contradistinction to nerve fibres (Leber, l. c.)) In the absence of pathological pigment, even in the right retina, we can not say whether permanent changes have resulted through any process in the choroid. (XX).

(X) Der Augenspiegel, etc., 1893.
(XX) C. S. G. Nagel, Archives of Ophthalmology, 1900, XXIX, Nov. 5.

For the general data in the foregoing history I am indebted to my colleagues, Drs. Moffitt and Ash.

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(1) Die Circulations und Ernährungs verhältnisse des Avges, Graefe-Saemisch, second edition.
(2) Zeitschr. f. Augenhlkd., March, 1903.

SOCIETY REPORTS

SAN FRANCISCO COUNTY MEDICAL SOCIETY.

Regular Meeting July 13th, 1909.

Dr. Emmet Rixford:

(a) **A Case of Compound Pott's Fracture and Colles' Fracture.**

This young man is a police officer who stopped an automobile in the Park on Christmas day last. He received a compound Pott's fracture, the whole of the ligamentous apparatus being torn away from the front of the joint and the end of the tibia, even including the internal malleolus, which was not broken, being thrust out through the tear. On the other foot he received a posterior dislocation of the great toe, on the right wrist a Colles' fracture and at the left wrist a fracture of the lower end of the ulna. The interest in this case is particularly in the excellent functional result of the ankle where the whole ligamentus apparatus was torn across and the thing exposed to infection. He was fortunately taken care of very quickly after the accident at the Central Emergency Hospital, where the wound of the joint was thoroughly cleaned, so that there was very little to do for it after he got under my care. We trimmed up the ligaments and put the ends of the bones together, closing the wound with drainage. Practically primary union resulted with, as you see, the present perfect form and considerable range of useful motion. As for the dislocation of the great toe, the posterior dislocation is quite similar to the posterior dislocation of the first phalanx of the thumb, and it is just as hard to reduce. I tried the classical manipulation of hyperextension, traction and flexion, but failed, and circumduction worked no better. Whether it was the capsule that grasped the head of the bone, as is the theory of some, or whether the sesmoid bones had got into the way of the process on the inner side of the head of the bone, or whether the head of the meta tarsal was grasped between the tendon of the long flexor and the abductor pollicis and flexor brevis, the traction closing them together (which is the generally accepted theory), it was interesting to me to try to find out. The first thing I did after failure in reducing was to make a subcutaneous section, with a small knife, of the capsule as is advised by Stimson, and to see what effect that had. It had no effect whatever; reduction was no easier than before. Next I exposed the joint by a little larger incision to see whether I could manipulate the tendons with the sesmoid bone; it finally resulted in a pretty wide section of the ligamentous apparatus of the joint, and still I was unable to reduce the dislocation. I succeeded only by lifting the long flexor tendon out from behind the shoulder on the inner side of the head of the meta tarsal bone, which was done with an elevator. The moment that was done the dislocation was reduced. I believe from the result in this case that posterior dislocation of the great toe and also that of the thumb can be managed by a small incision and so placed as to permit a blunt dissector or a prying instrument to be put in on the inner side and then prying off the tendon on the inner side from behind the expanded end of the bone. This manipulation will be facilitated by flexing the phalanx dorsally to relax the tendons.

(b) **A Case of Tuberculosis Peritonitis.**

This little boy in 1906 was brought into the hospital by Dr. Max Magnus with a tuberculous peritonitis; it was a typical case, with ascites, distended abdomen and hard masses to be felt in the omentum. We opened the abdomen, let out the fluid, examined the lesions and closed the wound. As soon as the wound was healed the patient was taken across the Bay, where he has been living ever since. I have not seen him for three years and he is apparently now a perfectly normal child. This is simply an example of the probable importance of the out-of-door treatment of tuberculosis more than anything else, but at the same time sharing the value of laparotomy in tubercular peritonitis. There was nothing used to wash out the abdomen. The primary focus was not found, the peritoneum was studded with tubercles everywhere and masses in the omentum were large enough to be felt before opening the abdomen.

(c) **A Case of Tuberculosis of the Spine, Wrist and Anal Region.**

This young man exemplifies another phase of tuberculosis. Two years ago he returned from the East with a fatal prognosis. He had a tuberculosis of the anal region which was so extensive that the tissue was undermined completely. The area of infiltration was about as large as my two hands outspread; there were ramifying fistulæ in many directions; patient was greatly emaciated, had fever, night sweats, etc. The question of operation was being considered, but we decided to take the rather desperate chance of radical excision. The whole tuberculous mass was dissected out and little islands of skin left were patched together as best we

could; about half of the total volume of the sphincter had to be removed. The wound healed kindly save for slight recurrence during the process of healing, which was overcome by a very slight incision and curetting; healing was complete. He went to the country and gained from 30 to 40 pounds in weight. Within six months' time he came back with a beginning numbness of the extremities and pain in the back and pain in the left wrist. There was a typical tuberculosis of the left wrist and tuberculosis of the spine with granulations in the spinal canal, causing compression of the cord. The paraplegia increased until it was with considerable difficulty that the patient could move his legs. The paralysis was never complete. However, a plaster of paris jacket was applied for the spine and Bier treatment given the wrist. In addition to the Bier treatment we used minute 1/10,000 mg. doses of Koch's T. R., and we have been giving it at intervals of about three weeks for the last year. His present condition is that of a young man in reasonably good health; he walks now as well as anybody. The most striking thing is the condition of the wrist. There was typical spindle formed wrist with granulations throughout the joint and limitation of motion, great muscular spasm and rarification of the bone as shown in the X-ray plate. The lesions in the bone had not formed any sequestrae, however, and there was no evidence of mixed infection. It is hard to ascribe the present outcome alone to the Bier congestion, which was kept up for three or four weeks. It seems very probable that the tuberculine was of real value.

(d) **A Case of Colles' Fracture.**

This case is one of Colles' fracture. This is a time-worn subject and yet is a thing which has not been altogether worn out. Many of the statements in the text books I think can be characterized as untrue. One is that there is little tendency to recurrence if you once get the Colles' fracture adjusted. I know that this is not so; fracture most always occurs in the cancellous tissue near its junction with the compact tissue of the shaft. Rarefying ostitis which follows fracture is much more apt to cause rapid absorption of the thin bony lamellæ than of comfort bone permitting shortening. One point which receives very scant mention is the approximation of the shaft of the radius to the shaft of the ulna, fracture being above the expanded lower end of the radius. That approximation permits a tilting of the lower fragment of the radius to the radial side, the shortening of the radius due to this tilting pulls off generally the styloid process of the ulna. If you do not force apart the shaft of the ulna and radius you lose a great deal in the effort of holding the lower fragment of the radius in its properly extended position. In another case I was much struck by this very thing. I opened and cut down upon the fracture and found that there was no manipulation which I could devise by which I could hold the thing in place except simple traction. This I believe would solve all difficulties of these cases could it be effectively carried out. The difficulty of applying traction is a practical one; it is exceedingly difficult to make effective traction upon the lower part of the radius. The pistol splint was intended to do that, but it does not do it, because as Hamilton showed, there is no fulcrum to make the leverage effective. This young woman fell from an automobile and received a Colles' fracture as well as a dislocation of the elbow. The Colles' fracture was typical and showed to a marked degree this deformity of the approximation of the radius and ulna shaft with great shortening of the radius. After various trials we cut down on the radius and put in a wire suture obliquely in such a manner as to hold the radial shaft to the radial side. You cannot always put in wire because the fracture is through cancellous bone, often the lower fragment is comminuted. Wiring is more satisfactory in secondary operations done at sufficiently long intervals for scar bone to have matured. An inflamed bone within a few weeks of the injury undergoing rarefying ostitis will not hold the wire. In this case we operated five months after the accident and we were able to get the wire in so that it would stay. Particularly was I impressed with the fact that by placing my wire in a certain position so as to hold the radius and ulna apart, I could make extension effective on the lower end of the radius. It is now five weeks since the operation and I am merely showing the case in order to show the absence of the prominence of the lower end of the ulna.

Dr. Langley Porter:

(a) **A Case of Splenic Anemia.**

This case is presented because of certain features of unusual interest in a child of 6 years of age. The patient presents an enormous spleen, hard liver which is not very much enlarged and fluid in the abdomen, no history of hemorrhages or petchiae, in fact a typical picture of splenic anemia. Perhaps some of you may prefer to think of it as Banti's disease. The patient has been ill for about fifteen months, the history was negative up to that time, when he had measles, since then he has had fever every afternoon, head sweats and a slight cough. A normal amount of urine has been passed but for some time it has been very muddy in appearance. Patient was constipated. The abdomen has been getting gradually larger. The exact date of the beginning of the enlargement can not be definitely ascertained; it is said to have been about the time of the measures. There has been considerable wasting away during this time and the child is no longer playful. He is growing weaker all the time. Physical examination shows the boy to be poorly grown and badly nourished, he has a very protuberant abdomen and his color is a muddy lemon color but the conjunctivae are clear. The heart is normal and the lungs move well but respiration is rapid. On the left side there is an area of dullness from about the 6th rib to the 12th, extending around as far as the posterior axillary line. The breath sounds are well heard, no rales anywhere. On palpation at the anterior border of the abdomen a mass is felt rounded and firm extending from the left costal margin in the mesentary line to the pelvic region and at a point lower than half way between the umbilicus and the pelvis and umbilicus there is a definite notch to be felt and a little lower down a second notch. This mass is taken to be an enlarged spleen. Above the line of the lower portion of the umbilicus has a knife like edge, very thin and hard. Roryanis percussion reveals that fluid is present in the abdomen. All the glands of the body are enlarged and hard. The blood picture is of interest in this case, although the urine is negative. There are 3,000,000 reds with a hemoglobin of 45% and 3,000 white cells. The

chief reason of having this child here this evening is to ask advice about treatment. The Moro and Wasserman reaction were tried and both were negative.

(b) **A Case of Pyloric Stenosis in an Infant.**

Some time ago this society had a symposium on congenital pyloric stenosis. This case is presented because it has shown all of the typical features of pyloric stenosis and now seems to be getting better. This is the eighth child that I have seen in 4 years with this trouble. Whether this was a case of stenosis or spasm I can not say, but I believe it to have been stenosis. The symptoms were very clear when first I saw the child. The history was as follows: the child began to vomit within a month after birth, and has been wasting away ever since. At birth the weight was 8 lbs. The child was fed every 2 hours and 2 or 3 times during the night. It seemed to thrive for a month and the food agreed with it up to that time. The bowels were inclined to be constipated, the movements soft and occassionally green, and the baby cried most of the time. I first saw the baby in its tenth week. Physical examination showed the child to weigh 6½ lbs., to be wasting and atrophic, the belly was not distended, was rather firm and hard and not tender, there was no local rigidity, the heart and lungs were normal and there was visible gastric peristalsis but no pyloric tumor palpable. The infant vomited at variable times after nursing, often more than it got at one feeding. The mother thought she had not enough milk and fed the child for some time on bread and a little soup. The child seemed to be satisfied after having nursed for five minutes. The vomitus showed coagulated milk, curdy and stained yellow. With regard to the treatment in this case, it was decided to temporize, and as the sister-in-law was at that time nursing a baby and had a full supply of milk, this child was put upon the breast of the sister-in-law for a while. For a few months the baby went on, neither gaining nor losing and was most miserable, it was wasted away and had a tremendously big belly. Operation was discussed with Doctor Stillman, but the mother wished the child to go on feeding from the sister-in-law's breast. Had this been my own baby at three months old, in the condition it was, I would certainly have had it operated. I think an operation would have saved the child two months' suffering, and I consider it only good luck that the baby lives. Of the eight cases which I have seen, five were operated upon and all are alive and well, three were not operated upon and this baby is the only one which is alive. Doctor Lewitt has another case, which would make the ninth in my knowledge and the second alive without having been operated upon. One other child I know of was operated and died. Thus we have six cases operated with one death and four cases unoperated with two deaths, figures which certainly encourage me to endorse gastro enterocolostomy at once on young children. While this child is feeding at the breast the peristaltic wave is visible.

(c) **A Case of Congenital Lues.**

This is a case of congenital lues showing the characteristic iritis and the double painless knee-joint of congenital lues. The teeth are the characteristic screw-shaped teeth instead of the regular notched Hutchinson teeth. The X-ray plate shows that the periosteum of both bones is involved.

(d) **A Case of Polyarthritis, Possibly Tuberculosis.**

This case I have brought to see if I can get help in diagnosis. Doctor Stillman has operated upon the ulcer of the leg of this child which has been rapidly breaking down. The leg has been doing well since the operation. Doctor Ophuls reports, after examining the sections from the ulcer, that it was a granuloma of the skin. The girl is twelve years of age. The right knee began to swell two years ago, but the condition in the left knee began when she was 7 years old. She was a 7 months' child; weaned at 6 months and walked at 2½ years; had no convulsions; never vomited and never had sore throat. She has had cold sweats at night from time to time but was not subject to colds. Physical examination shows a spindle shaped swelling close to the joint of the left elbow. The swelling is not painful and is moderately tender. The head of the radius is swollen and large and so is the internal condyle of the humerus and to some degree the upped end of the radius; movement is limited in this joint. The right elbow joint seems to be normal. There is some grating to be elicited on rotation of the forearm and some slight grating of both shoulders. The knee joints are involved and the right is large and spindle shaped. The knee joints are not painful. The Moro test was positive, the Wasserman negative. The X-ray plates, taken of the elbow joints, show a joint like that of an older person; development being further advanced than is customary at this age. The joint space is smaller and less clean cut than usual and there is no apparent destruction of the bone or periosteal deposits. The radiograms of the knees are somewhat blurred owing to the quantity of fluid present within the joint. Here there is also a tendency toward increased rate of development. There is no evidence of bone destruction. On the outer point of the left tuberosity the bone has a scalloped appearance. The question in this case is the diagnosis and prognosis. Doctor Stillman believes that the elbow is an old tuberculous one held in ankylosis. There is a reasonable assumption considering that the child showed the positive Moro reaction. The knees are not characteristic tuberculous knee joints. What we are dealing with is a question which I would like to hear discussed. I lean to the idea that this is a rare type of polyarthritis due to a hidden focus of tuberculosis. Such cases have been reported. Doctor Rothchild has called my attention to a recent report on toxic polyarthritis due to a tuberculous focus in some other part of the body by Schaffer, Journal for Tuberculosis, No. XIII, in which 116 not dissimilar cases are reported.

Dr. Ethan H. Smith:

A Case of Double Congenital Dislocation.

I beg leave to present this case demonstrating a recovery from double congenital dislocation of the hip joint, reduced by Hoffa's method. I herewith present radiographic prints both diagnostic and also showing the result. This child came to me a year ago last August at the age of two years and five months. She showed the characteristic deformity of double congenital dislocation and the characteristic waddling gait. I have been asked if "Hoffa's Method" does not mean the open method. Hoffa was the first surgeon to do the open operation for the relief of this condition, but abandoned that for the so-called bloodless method, which is a modification of the Lorenz method eliminating the brutal features of Lorenz manipulation. The adductors are not massaged and pinched off proceeding to the reposition of the head of the femur in the acetabulum. The reduction of the dislocation is not a difficult matter. A great deal has been said about the bar to effective reduction, or cure of these cases, because of the capsular ligament and contraction of the same. This is of small consequence. If the head of the femur is once placed in the rudimentary acetabulum and kept there, these cases will recover providing the joint is not too lacking in development. The earlier in foetal life the dislocation occurs, the greater will be the discrepancy in the bones and the harder the task of treatment. If we confine the head of the femur in any one location on the innominate bone and keep it there we shall get a secondary acetabulum. The capsular ligament has very little to do with it.

Dr. Réné Bine:

(a) **A Case of Melanosarcoma of the Eye.**

Mr. W., age 50, entered the German Hospital on April 7th, complaining of pain of two months' duration, in the left shoulder, in the lumbar region, and occasionally in the knees. The pain was aggravated by motion, was more or less present all the time, and was of a dull aching character. The patient used to drink heavily at times in former years, but had been temperate of late years. Family history unimportant. In his past history venereal disease was denied. He had typhoid when a boy, malaria at age of 33, and at 40 had lost several toes as the result of exposure to cold. An indefinite history of hemoptysis as a boy, and of a winter cough of 20 years' standing completed the patient's tale.

The examination revealed the following points, all of which are now to be seen, though they were perhaps less prominent on admission than they are now.

The patient is emaciated and thin, about 35 pounds under his average weight. His left eye, lost as a result of trauma one year ago, the patient being a blacksmith and exposed to the wind, dust and dirt (for three weeks was under doctor's care, then on account of acute inflammation), presents the following condition: conjunctiva pale with large conjunctival and subconjunctival vessels which continue large up to corneal margin. Cornea clear. Anterior chamber is completely abolished, filled with a grayish-yellowish mass with some black pigment. Tension plus 1 (at least). Slight amount ptosis. Globe bit small. Right eye apparently normal.

Heart and lungs practically normal except for an old apical dullness, there being no rales, no sputum, and no Pirquet reaction. The liver is remarkably enlarged, reaching to the umbilicus, and while it was fairly smooth and regular on admission, there are now several spots of softening palpable on the surface. It is impossible to say whether the spleen is enlarged, because of the overlapping left lobe of the liver.

There are numerous nodules in the skin, freely movable, and varying from the size of a small shot to that of a large pea. They seem to have increased in size as well as in number and perhaps to have become a shade darker, since the patient came under observation.

The blood, urine, gastric and stool analyses were negative. An X-ray plate showed no changes in the pelvic bones or vertebrae.

A nodule was excised from under the skin, and Dr. Ophuls, who very kindly sectioned it, reports that it is a fibrosarcoma.

In spite of this, as well as in spite of the absence of melanuria, we believe that the patient's disease is a malignant one, the result of metastases from a primary melanosarcoma of the left eye. He has failed rapidly during the last two weeks, and is now so feeble as to be almost unable to stand unaided—quite a change from the day he walked into the hospital.

(b) **A Case of Myxoedema.**

This little girl, age 15, has been under Jellinek's observation for nine years, and I am presenting her to-night for your attention, not because of her myedematous condition, which can be recognized at a glance, but because of her having had two large cavernous angiomata when she first came under observation, one of which, on the lip, has practically disappeared coincidently with thyroid medication, while the other, a very large one over the thigh, has been transformed into a small teleangiectasis. The photographs I am passing around show the original status of these lesions. Owing to ignorance on the part of the parents, as soon as the child improves a bit, they discontinue the thyroid feeding, so that the patient is still far below the normal in development.

Dr. H. Edward Castle:

Intracuticular Wound Suture.

In presenting this case we trust it will make clearer an improvement in our technic which we consider quite advantageous in the closure of wounds. During the last year Dr. Ryfkogel and I have closed the skin with No. 16 cambric needles and china bead silk, the same kind of material we use in anastomosing arteries and veins. Dr. Morris has very kindly come before you to-night to permit you to inspect the scar which resulted from an operation for appendicitis one month ago. The slight redness along the line of suture is produced by the exfoliation of the epithelium which was taken within the grasp of the suture. In a short time this new epithelium will fade and the ultimate result will be perfect. This refinement of minimum scar has not much importance in covered parts of the body; a subcuticular silk-worm gut will answer practically as well; but on exposed surfaces it is of great value. You will kindly permit me to speak a word of the post-operative treatment of Dr. Morris, which is typical of that in general routine. He was put into Fowler's position when brought from the operating table. After he recovered from the anesthetic, i. e., about four hours, he was instructed to get up in a chair, at which time he had a cold sponge and the bed changed throughout. In a few hours he went back to bed and slept during the night. Next morning he was up, and likewise each succeeding day. He left the hospital on the fifth day and resumed work on the eighth day, looking as though he had been out camping rather than in a hospital, owing to his being in the sun so much. We advocate this line of treatment in any simple major operations such as appendectomies, hysterectomies, etc., which should be performed in 15 to 40 minutes, believing the patient will convalesce better, having fewer complications of lung and kidney affections, and less discomfort from intestinal disturbance, backache and nervousness.

Dr. P. Campiche:

A Case of Van Recklinghausen's Disease.

This patient is 42 years of age and has always been in good health. He says there are no other skin diseases in his family. As far as he can remember as a child he had already a very small number of nodules in the skin. On examination we find the cutaneous surface studded with hundreds of soft, painless tumors, some of them are flat or still under the skin, others are sessile, while the great number are more advanced and are pedunculated. I would also like to call attention to the bluish aspect of some of the flatter tumors which very much resemble naevi. The affection has involved the scalp but the palms of the hands and the soles of the feet are free from growths. This is evidently a case of generalized fibroma molluscum. The number of these tumors can be very great, and a Japanese author (Hashimoto) has counted 4,500 of them on a single individual. They are supposed to take their origin in the deep layer of the corium and possibly of the nerve sheaths, and are considered as hyperplasias of the connective tissue. The alteration probably begins in foetal life, is closely related to the naevi and can be considered as a congenital malformation in the connective tissue. Recklinghausen has described a special variety in which these generalized fibromata are associated with some pseudo-neuromata or fibromata of the nerve sheaths, and defective intellectual development. The affection is also familial. I have not been able to find in the patient any tumor in the cutaneous nerves, and I would consider the case as one of single fibroma molluscum father than as an instance of Recklinghausen's disease. In stating the prognosis of this very chronic affection it would be remembered that according to Garre 10% of the cases subsequently undergo sarcomatous changes. Many textbooks hold that the

only possible treatment is surgical, such as excision, ligature or electrolysis. But in 1900 Whitehouse attracted much attention by publishing in the American Journal of Cutaneous Diseases a case of generalized fibroma molluscum in which he said the growths disappeared rapidly on administration of Asiatic pills. If any of the members of this Society have had similar experience I should like very much to hear their opinion as to the value of arsenic in such cases.

Dr. A. B. Spalding:

(a) **Two Specimens of Ruptured Uteri.**

These two specimens of rupture of the uterus I present to demonstrate not brilliant work, because both mothers and babies are dead, but simply to illustrate some of the dangers of the supposed conservative obsterical operations. The first case of rupture of the uterus came to my service at the City and County Hospital about four years ago. The history has been lost and the identity of her medical attendant is unknown, but the specimen speaks for itself. The specimen shows a ruptured dermoid cyst attached to the uterus and the posterior segment of the uterus has an opening that was very probably caused by puncture with forceps applied above the brim of the pelvis, or the rupture may have occurred by pulling down the lower segment of the uterus onto the promontory of the sacrum and causing the rupture in that way. The woman, when admitted to the hospital, was in extreme shock; the uterus was packed by the resident physician and the patient died the next day. At the autopsy there was found a general peritonitis, a ruptured left ovarian dermoid cyst, and a rupture of the uterus as presented by this specimen. This shows one danger that comes from applying high forceps without knowing the true condition causing the dystocia. The baby in this case had a depressed fracture of the skull and died three days later.

The second case of rupture of the uterus was caused by manual dilatation of the cervix. In this case the woman was a multipara, 28 years of age. This was the sixth child. There is nothing interesting in her history except that the pelvis was slightly contracted. The previous deliveries had been normal and spontaneous. The patient expected to be confined on May 26th. The following notes were obtained from her attending physician after the patient was admitted to the hospital. There was a history of two abortions, the last one a year ago. There had been two operations, one for gallstones and one for appendicitis. There was no specific history. The diagnosis of breech presentation was made shortly before delivery. Labor pains began at six o'clock on the morning of June 3rd, and the doctor was called to the case about eleven. At that time there were no fetal movements and the fetal heart could not be heard. On vaginal examination the membranes were bulging through the cervix. The membranes ruptured and a large amount of foul smelling amniotic fluid escaped. An arm presented through the cervix, the cervix being dilated about two fingers. The pains which had been regular up to the time of the rupture of the membranes, stopped and forty minutes later an attempt was made to dilate the cervix manually to turn the child. This was attempted for an hour by the attending physician and an associate, without anesthesia, and at the end of the hour they noticed a small tear in the front of the cervix opening into the abdominal cavity which they thought was the giving out of an old scar. This is a point which I wish to emphasize because later, at the time of operation, it was found that the uterus was so twisted on itself that the left broad ligament was directly anterior and this small tear was an extensive laceration through the cervix and lower uterine segment. At this time the patient collapsed and had a hemorrhage. She was packed by vagina and hurried to the University of California Hospital. Some time was necessary to do this and it was not until two hours after the rupture occurred that I first saw her. She was practically pulseless and had extreme pain in her lower abdomen. There was very little external hemorrhage. The question was what was best to do. The physician who came with her urged laparotomy. What we did first was to make an examination and remove the gauze. I found the baby could be turned easily by a Braxton-Hicks version. After the child was turned I did a carniotomy and delivered the child. The patient was in such extreme shock that I did not think I should take the chances of a laparotomy and hoped that her shock would subside. After the delivery I packed again and gave an intravenous infusion of salt solution with an injection of adrenalin as advocated by Crile. The result of the injection of the adrenalin into the vein was very marked. The pulse came up and kept up for some time, but she went into shock again and was apparently dying. I then did a laparotomy as a last hope. On opening the abdomen the uterus was found twisted so that the left broad ligament was directly anterior and the cross diameter antero posterior. Evidently in doing a dilatation of the cervix by Edgar's method they had pulled directly apart the left side of the uterus opening into the broad ligament, tearing the uterine artery and its branches. The broad ligament was distended with blood and had ruptured anteriorly and posteriorly, there was considerable blood in the abdominal cavity. A rapid extirpation of the uterus was attempted but the woman ceased breathing before this was completed.

These cases illustrate some of the dangers of high forceps operations and of dilatation of the cervix by Edgar's method. I believe that other operations are in selected cases of more value and I believe that such operations should be done before the patient is dying. That means that the obstetrical patient is entitled to the same careful diagnostic attention and matured operative judgment that the surgeon gives to the surgical patient.

(b) **A Case of Haematoma of Vulva.**

This case is one a similar treatment of which I cannot find recorded in the literature or in the textbooks. The woman was admitted in extremis to the University of California Hospital with the following history: Seventeen years of age, primapara. A small amount of sugar was present in the urine during pregnancy. The labor progressed normally until she was well along in the second stage and the head presented at the vulva. Labor promised to be easy. Then there appeared spontaneously a lump about the size of a walnut in the left labrium major. At first this could be reduced by taxis and was stated to be tympanitic. The tumor increased rapidly in size, soon involving all the left side of the vulva and the perineal region. The patient was in extreme pain and the labor pains were rapid and violent in the expulsive effort. She was chloroformed to stop the pains and taken to the hospital. I have seen only one other case of large puerperal hematoma, and I acknowledge this case was puzzling. Upon making an abdominal examination I found the foetal heart 90. It was impossible to examine vaginally because a mass about the size of a foetal head involved all the left vulvar and perineal region. The attending physician insisted that the mass was a large hernia. Spontaneous rupture seemed imminent with each labor pain. The drawing which I present was made by Dr. Lee at the time the patient was being prepared, and shows accurately and graphically the extensive involvement of the vulvo-perineal region by the tumor mass. This illustration will be published later with a more detailed report of the case. The treatment recommended in these cases is to make an incision and then extract the baby. However, if I had an-

other case of large hematoma obstructing labor I should treat by Cesarean section, as I did this case, for the following reasons: In making a perineal incision some patients have died from hemorrhage while many others have died later from sepsis. If you pull the child through the oedematous vulva and vagina you open up avenues leading to infection of the abdominal cavity. In my case treated by Cesarean section the baby was delivered and revived. After the abdominal incisions were closed the hematoma was opened and packed with gauze saturated with a mixture of camphor and phenol. The vagina was also packed with gauze. At no time later was there any infection of the uterus although the perineal wound became septic. The baby survived and the mother, in spite of the severe sepsis developed in the cavity of the hematoma, after running a high temperature for three weeks, recovered and is now pregnant again. I present this case for the consideration of the operation of Cesarean section vs. forced vaginal extraction and believe in this case the evidence favors the more radical procedure. To-day I gave my advice for a Cesarean section in a case of placenta praevia and the baby is alive. I do not believe that in properly selected cases, in hospital practice, and in experienced hands the operation is so serious as made out.

Dr. W. W. Boardman:

A Case of Indurative Headache.

As the case which I wished to present this evening is not here, I will merely give a brief history. M. F., came to Lane Hospital, entering under the service of Dr. Schmoll; he was an American, aged 23, carpenter. Two years ago he was taken with very severe pains in the left side of the head, beginning over the entire side. As time went on the pains became more severe and localized to the base of the cranium. The man went to the different clinics about town. He was treated for lues, his eyes, nose and throat were examined with no success. I went over him when the case came in and found nothing in the blood, feces or urine analysis. Physical examination was apparently negative until Dr. Schmoll on deep palpation of the neck found several indurated nodules in the muscles which could be rolled between the fingers. These were very painful upon slight pressure and varied in size from a pea to a small marble. Upon these findings the case was called one of indurative headache. The patient was put on salicylates gr. XV., given every three hours with local heat applied to the neck and massage twice a day. For the first three days the patient required liberal doses of opiates, but then improvement was manifest, the headache clearing up rapidly, the pain becoming less severe and disappearing by the 9th of April. This was the first time in two years that the patient had been free from pain for any length of time. The patient was discharged as cured, but on the 22nd of June he returned with an acute intestinal condition and a slight return of the headache, which rapidly cleared up upon renewing the former treatment. The objective results of treatment were very interesting. First, these indurated nodules became less tender, then diminished in size and finally practically disappeared. Although this is a well recognized clinical entity in Europe and is by some claimed to be one of the most frequent causes of headache, there is very little in the American literature upon this condition. In closing I should like to call your attention to an article in the Journal of the A. M. A., April 24, 1909, which briefly and clearly reviews this subject of indurative headache.

Dr. Wm. Ophuls:

Demonstration of a Sarcomata of Uterus.

I wish to present eight specimens of sarcoma of the uterus which we have collected in the Pathological Laboratory of Cooper Medical College in the course of the last ten years. Sarcoma of the uterus is usually looked upon as a rather rare disease although (1) Winter states that in a series of his own of 753 cases of fibromyoma of the uterus by careful histologic examination he was able to detect sarcoma in 17, which represents an average of 3.6%. Noble (2) has collected 2,274 consecutive cases of fibromyoma of various authors, among which there were 34 sarcomata, an average of 1.4%. Among his own series of 337 cases he found two sarcomata only, i. e., less than 1%. I believe that some of the cases of Winter, although histologically suspicious, would hardly be classified as sarcomata, clinically, and that on this account Noble's average of about 1½% is more nearly correct.

Sarcoma of the uterus was accurately described quite early in medical literature. Virchow (3) speaks of it in his book on tumors and early English authors like West and others have called attention to it under the name of "recurrent fibroid." The relation of the sarcoma of the uterus to the ordinary fibromyoma is naturally of great interest because if a conversion of this benign tumor into sarcoma is fairly common it affords an additional indication for early operation. The first description of the uterine sarcomata as recurrent fibroids practically implies that these tumors are closely related to and commonly arise from fibroids. This idea has gained a strong foothold among medical writers although our own experience makes us believe that quite often these tumors are independent of pre-existing fibromyomata. Ricker (4) emphasizes this view very strongly, going so far as to say, "Es ware interessant zu erfahren, wie der Klinisch so häufig gebrauchte anatomisch mur in ganz ausserordentlich seltenem Fällen bestätighe Begniff der malignen Degeneration der Myome entstanden ist." Of the eight tumors which I wish to show to-night not one has any definite relation to a pre-existing myoma and in my records I find three cases only of fibromyomata with sarcomatous places in them. I do not wish to be understood as if sarcoma could not arise from fibromyoma, too many convincing cases have been described in literature to make such an assertion, but the possibility of the independent origin of such tumors does not seem to receive the attention which it deserves.

Another question which has aroused considerable interest is the one, whether the cells of these malignant tumors are derived from muscle cells or from the cells of the interstitial connective tissue. V. Kahlden (5), Williams (6), Pick (7) each claim to have demonstrated the origin of their tumors from muscle cells, still both Williams and Pick refuse to accept v. Kahlden's case as convincing, although it is quite similar to theirs. It would hardly seem possible in these instances to decide with certainty whether one had to deal with a very definite mixture of sarcoma and muscle cells or whether they actually originated from one another. Recently Mallory (8) has attacked this problem in a more promising fashion, departing from his observation that in the involuntary muscle there are certain fibrils (myoglia fibrils) which are more or less characteristic. It is true that in staining reaction and other properties they resemble similar fibrils which are found in fibrous tissue, the so-called fibroglia fibres, but Mallory believes that in other respects they are sufficiently different to make them distinctive. With his method he finds that a considerable proportion of the sarcomata of the uterus is of muscular origin. He believes therefore that muscular tumors should not be spoken of as sarcomata of the uterus, as that would imply origin from the connective tissue, but better be termed malignant myomata. Mallory acknowledges, however, that ordinary spindle-celled sarcoma of connective tissue origin do occur in the uterus. Unfortunately our material was not preserved in the proper way to

allow of an application of Mallory's methods. It is impossible therefore to tell how many if any of our specimens are of muscular origin.

So far as the gross anatomy of these tumors is concerned, the original classification of Hegar is still commonly adhered to. He distinguished between sarcoma of the mucous membrane and sarcoma of the wall. The sarcoma of the mucous membrane is more or less polypoid, projecting into the interior of the uterus, extending also a certain distance into the wall. The sarcoma of the wall on the other hand forms in the substance of the uterine wall. Eventually it may reach the inner or outer surface and in advanced tumors it may be difficult to make out whether they originated in one way or the other; a difficulty which Hegar already called attention to. Among our tumors there is one typical sarcoma of the mucous membrane (case 1), and another one (case 2), which probably originated in the mucous membrane. Cases 3, 4, 6, 7 and 8 are typical sarcomata of the wall of the uterus. Case 5, although apparently originating in the lower part of the uterus, not in the cervix proper, exhibits a close resemblance to the sarcoma of the cervix which by some is put in a separate class by itself. These tumors are polypoid, more or less papillary, rapidly growing and very malignant. The blunt papillary projections of them, which hang down into the vagina, are often oedematous; according to some they may contain true mucous tissue. In these tumors cartilage and striated muscle cells have also been found. They are usually described as the traubige cervixsarcoma, sarcoma colli uteri hydropicum (Spiegelberg). The sarcomata presented here differ considerably in their histologic structure and accordingly in the rapidity of their growth and in their malignancy. It is incorrect therefore to speak in a general way of the malignancy of sarcomata of the uterus. It varies with each individual case.

Cases 1, 2 and 6 are rapidly growing malignant tumors of the type of the spindle celled sarcoma. Case 5 shows many large multinuclear giant cells which are quite common in such tumors. Cases 3, 4 and 5 are characterized by the presence of large numbers of new-formed blood vessels and lymph vessels which latter are dilated and filled with an abundance of clear lymph. These lymph and haemangi-ectatic sarcomata of the uterus seem to constitute a definite type of such tumors. Case 4 resembles somewhat the tumor described by Williams as a melanosarcoma of the uterus as it is very deeply pigmented. I do not believe that these tumors should be so classified as the pigment is evidently blood pigment, not autochthonous pigment, as in a true melanosarcoma. Cases 7 and 8 represent more slowly growing tumors of the type of a fibrosarcoma; case 8 especially contains much dense fibrous tissue and except for the apparent destruction and infiltration of the uterine wall might very well be taken for a hard fibroma.

The following is a short description of the findings in each case:

Case No. 1—B. 516. Mrs. P. Dr. Rixford. Aug. 9th, 1902. Uterus about size of two fists with hypertrophied wall. On the outside directly under the peritoneum there is a hard, well defined spherical tumor, size of a walnut. On the inside the surface is very ragged over a large area. The area is surrounded by nodular tumor masses which extend quite a distance into the uterine wall, and do not show a sharp line of demarcation against the muscle. Microscopical examination.—Shows the outer tumor to be a typical hard fibromyoma. The tumor masses on the inside consist of bundles of large spindle-shaped cells with very large clear oval nuclei. These cells do not stain with picric acid like involuntary muscle cells. Between the bundles there is some connective tissue which in places shows marked hyaline degeneration. In many places the tumor contains a considerable number of large bloodvessels. Some of the walls of the capillaries also show hyaline degeneration. The outline of the tumor towards the uterine wall is very irregular. In most places the tumor is surrounded by a layer of fibrous tissue, but there are places in which the tumor masses reach down to the muscle without the interposition of a capsule, and show an infiltrative growth. Near the base of the tumor masses there are several large arteries with very thick walls, partly filled with thrombi. Diagnosis—Spindle-cell sarcoma of the uterus.

Case No. 2—K. 582. Mrs. H. Dr. Somers. May 24th, 1909. Uterus moderately enlarged, wall infiltrated on one side with grayish white fairly soft hemorrhagic tumor about 6 cm. in diameter, with central large ragged cavity which opens into the uterine cavity. The tumor extends from the interior, where it forms a nodular projection through the uterine wall forming a flat nodular projection on the outside, which is still covered with peritoneum. Section shows tumor made up of very large irregular or spindle-shaped cells which penetrate far into the muscle. The tumor cells are more or less spindle-shaped, arranged in bundles with some connective tissue fibrils between them. The inside projections of the tumor show large capillary blood vessels in the center of the bundles of cells. Diagnosis—Spindle celled sarcoma of uterus.

Case No. 3—B. 264. Miss W. Dr. Stillman. Feb. 27th, 1902. The tumor is about the size of a child's head and is somewhat pear-shaped. The surface is white, in places a little coarsely granular, otherwise nearly absolutely smooth. The tumor is very soft, almost fluctuating. On the cut surface one sees that it consists of a tough fibrous outer membrane which is between two and three mm. thick; the rest of it consists of what appears to be very oedematous loose fibrous tissue. On one side this soft tissue shows a diffuse hemorrhagic infiltration. The lower part of the tumor is more solid, having about the consistency of the uterine wall, and is grayish white in color. The upper part of the uterus is attached to the lower pole of the tumor, and the dividing line between the tumor and the muscle is fairly sharp. The uterine cavity is normal, the appendages are normal, and in a normal position. Microscopical examination—The tumor consists of bundles of large spindle-shaped cells, with some connective tissue fibrillae between them. In the more solid parts there are few, in the soft parts very many capillary spaces which are filled with blood; there are also very many irregular lymph spaces filled with lymph. In places there are numerous small hemorrhages and some brown granular pigment. The capsule consists of dense fibrous tissue with some bundles of involuntary muscle. Diagnosis—Lymph and haem-angiectatic sarcoma of the uterus.

Case No. 4—E. 316. Mrs. B. Dr. Steltzner. Dec. 21st, 1904. Within the uterine wall, enclosed by muscle on all sides, there is a round, badly defined tumor about 5 cm. in diameter. In the center there is a large irregular cavity with ragged inner surface which in many places shows remnants of an old hemorrhage and a marked brown pigmentation. The little tumor tissue left in the periphery is almost white with a perfectly smooth cut surface. No other tumors present. Sections of the tumor show that it consists almost entirely of bundles of rather short spindle cells with oval clear nuclei. There are many capillary blood vessels, and many dilated lymph vessels. No sharp line of division between the tumor and the wall of the uterus. Near the cavity there are masses of dense fibrous tissue full of brown granular pigment. Diagnosis—Lymph

and haem-angiectatic sarcoma of the uterus with old central hemorrhage.

Case No. 5—K. 640-653. Mrs. R. Dr. Somers. June 7th, 1909. Soft tumor full of hyperaemic blood-vessels with a smooth surface full of polypoid projections seems to arise from the lower part of the body of the uterus and project down through the dilated cervix. Several large detached specimens of a similar tumor material from within the peritoneal cavity. Sections show tissue composed of bundles of large spindle cells, many large multinuclear giant cells, and many large new formed capillary blood vessels surrounded by thin sheaths of connective tissue. Many dilated lymph spaces, mostly around blood vessels, partly filled with red blood corpuscles. Diagnosis—Lymph and Haem-angiectatic sarcoma of the uterus.

Case No. 6—G. 799. Mrs. S. Dr. Rixford. April 17th, 1907. Small uterus with rather wide cavity. Mucous membrane swollen. Small subserous fibromyoma. Large intramuscular, fairly well circumscribed tumor of the fundus about 11 cm. in diameter, which has grown through the muscle to the peritoneum. Tumor is grayish brown and soft. Sections show that it is composed of large spindle cells arranged in bundles. Many large capillary blood vessels and veins. Diagnosis—Spindle-celled sarcoma of the uterus.

Case No. 7—F. 86. Mrs. B. Dr. Rixford. Sept. 8th, 1905. Uterus, nodule from the iliac peritoneum and pelvic lymph gland. Within the wall of the uterus there is a nodular tumor the size of two fists. The cut surface of the tumor is rather smooth grayish white, in the center more yellowish and opaque. The uterine cavity is of nearly normal form, but from three to four times the normal size. The tumor extends through the muscle on the outside, where it projects with a fairly smooth coarsely nodular outer surface. Sections from the main tumor and from the metastatic nodule from the peritoneum show a tissue consisting of bundles of large spindle-shaped cells with narrow strands of connective tissue fibrils between them. Here and there one finds large mononuclear giant cells. A moderate number of large capillary blood vessels. Toward the center the tumor shows more intercullular substance. Large central necrosis. In the periphery of the large tumor one can plainly observe that the tumor cells infiltrate the uterine muscle and destroy it. There are a moderate number of mitoses. The small lymph gland shows some catarrh of the lymph spaces but no tumor. Diagnosis—Fibrosarcoma of the uterus.

Case No. 8—G. 735. Mrs. H. Dr. Stillman. March 30th, 1907. Large ovoid grayish white solid tumor, about 10 cm. in diameter, with area of softening in the center. Sections show tissue to be made up of bundles of very large wide spindle-cells in bunches with large oval nuclei. The spaces between the cells are filled with connective tissue fibriles. In the center of the bundles one finds large capillary blood vessels. Around these the tumor is especially cellular and in these places there are a few large fusiform mononuclear giant cells. Diagnosis—Fibrosarcoma of the uterus.

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BOOK REVIEWS

Medical Sociology. A Series of Observations Touching Upon the Sociology of Health and the Relations of Medicine to Society. By James Peter Warbasse, M. D. New York and London, D. Appleton & Co., 1909.

The author of the above volume of essays, addresses and observations, is well known to the profession as the former editor of the New York State Journal of Medicine. His book ought to be read by every parent in the land and should be placed in the hands of every instructor of the young and upon the shelves of every public library.

Doctor Warbasse believes with Lord Beaconsfield that "public health is the foundation on which reposes the happiness of the people and the power of a country, and that it is, therefore, the first duty of the state to provide for the public health;" and, citing Descartes, that if it is at all possible to ennoble mankind it will be through medicine. His volume is an attempt to "draw the physician and the people closer together" and "to teach the public the importance of medical knowledge and of the medical profession and its power to save." It is the earnest, eloquent plea of a public spirited citizen and savant for the diffusion of medical knowledge among the people, so that "knowing the truth they may do the right," and for the exercise of preventive medicine by the state. Doctor Warbasse would make the study and teaching of biology, physiology and hygiene compulsory in the common schools, and deplores the fact that "no medical college in the land has a course in hygiene and sanitation worthy of the name." He further urges the establishment of a federal department of public health presided over by a sanitary general or secretary of public health, and wonders that the country is so slow to awaken to the necessity of such a branch of the government.

"Preventive medicine is the thing." He would even change the term "medicine," which he very correctly finds too suggestive of drugs, especially to our legislatures and courts, to "sanitary science."

The lay reader will find the chief interest in the chapters on alcoholism and the venereal peril. The perils of alcohol are perhaps familiar enough to, although not sufficiently realized by, the public; but the average layman, even the well educated, who reads Doctor Warbasse's instructive volume, has but a faint conception of the awful penalties of gonorrhoea. Has he not been taught by his old-time doctor to treat this common complaint lightly, even with contempt? Was he not discharged cured after perhaps a week's treatment? It will be then with no small degree of surprise that he will hear Doctor Warbasse declare that the gonococcus still lurks in the depths of his urethra, ready at any moment to be awakened to activity and to impregnate the wife of his bosom, entailing upon her a host of uterine disorders, causing her untold suffering and a chronic state of invalidism. The statement that according to gynecologists "75 per cent of the operations for inflammatory diseases in women is due to gonorrhoea," that this disease is "a disease of virtuous wives in our great cities," that "in the United States it is calculated that 65 per cent of the males have had this disease," that "it is the most prevalent of all diseases next to measles," that "most of the sterility of women is due to gonorrhoea contracted from the male," that "30 per cent of the males and 50 per cent of gonorrhoeal women are sterile," will fill him with horror. Doctor Warbasse says the report of the experts are "woefully complete."

In what measures is the remedy for this social scourge to be sought? By the diffusion of medical knowledge, individual and legal prophylaxis, according to Doctor Warbasse. "It is not so much

a want of virtue or of morals that concerns us as it is a want of knowledge and adequate instruction. The only cure for the lack of virtue which will stand every test is knowledge. Evils which cannot be remedied by the cleansing power of truth are beyond the reach of human agencies. If to know all is to forgive all, so also is it true that to know all is to escape the necessity for being forgiven. The beginning of the victory over this great social scourge will come when its real character is known and understood by all men and women; when the penalties for violations of sexual hygiene are as common knowledge as are the penalties for violations of the common law of the state; when the dangers of falls into adultery are understood as well as are the dangers of physical falls; and when the tinsel is struck from the shoulders of women of loose sexual practises and the pitiable creature beneath is exposed. There is little distinction between the innocent and the guilty; all who suffer through unenlightment are innocent, for no one is so guilty as to elect unhappiness. At the bottom of these troubles lies the ignorance which it devolves upon society to remedy. Medical science has accumulated the knowledge which is necessary to correct these evils; it remains for the parent, the teacher, and the guardian of public morals to apply it."

It might be objected that, if ignorance is at the bottom of the trouble, how shall we account for the fact that the medical student and the specialist for sexual diseases are so often roaring libertines. Is not the aphorism of the brilliant and profligate Hamilton—man is a more reasoning than reasonable animal, mostly guided by his passions—eternally true? Doctor Warbasse cites Herbert Spencer to the effect that "to be a good animal is the first requisite to success in life, and to be a nation of good animals is the first condition to natural prosperity." Granted, but is not man, like the animal, polygamous by nature, and does he not, like the earth, rotate between Venus and Mars? Reason is certainly not his axis. In order to enter the sanitary kingdom of Doctor Warbasse one must be born again. How much more logical and simpler it would be to discover a vaccine for the venereal plague than to attempt to change human nature.

Still worse, even ridiculous, is the recommendation that the state must demand a clean bill of health from the man who applies for a marriage license.

"But one thing the state can do—and now; it can demand a clean bill of health from the man who applies for a marriage license. The innocent wife is the one who too often reaps the wild oats sown by her husband. The state owes it to her to see to it that the marriage contract with which it is so much interested shall carry with it a guaranty of safety."

Is not this paternalism with a vengeance? In the hygienic republic, in the prophylactic despotism of Doctor Warbasse and others, personal liberty is out of the question. Some of us would perhaps prefer to take our chances with the venereal plague and be free. What an opportunity for graft, and how fortunate for mankind that doctors often disagree!

In his chapter, "Sexual Immorality and the State," Doctor Warbasse asserts that "of the 30,000 prostitutes of New York 10,000 came from respectable homes, the daughters of loving mothers, that there are 10,000 little girls now happily playing with their dolls by their mothers' side who are to grow up and take the places of these when they have been swallowed up by the great consuming maelstrom of the city. It is not for the 10,000 prostitutes that we need be the most concerned—they are lost; but the 10,000 little girls are worth saving."

The critic will be apt to pronounce the deliberate desertion of the 10,000 women more sinned against than sinning wholly unjustifiable on the part of the physician-author who preaches the power of medicine to save and calls its mission "holy." If it is absurd, and Doctor Warbasse says it is, to arrest the drunkard and clap him into prison, when it is evident that he should be sent to the hospital, why is the bride of a thousand bridegrooms abandoned to the tyranny of the police and the insults of the public responsible for her degradation? Why is she not put upon the Weir Mitchell treatment, subjected to the suggestive influence of a Dubois, instructed in medical truth and taught to reason correctly. Not every Maslóva can expect to find a prince willing to save her. In other words, should not preventive medicine, like hygiene and law, be no respecter of persons?

The physician is seldom a good politician. Perhaps it is because of his great respect for the truth. Doctor Warbasse is no exception to the rule. The flings at the Church, and they abound in his pages, although perhaps natural in a man of science, are, to say the least, impolitic in one who is seeking to convert an ignorant, prejudiced and superstitious public to the principles of hygiene and sanitation, and who demands for the medical profession a large representation in the government. How much wiser it would have been to render unto Medicine what is Medicine's, unto God what is God's! But after all, the above views are only those of a layman, and, in spite of some inconsistencies and the exaggeration common to all ardent reformers the book of Doctor Warbasse is worth more than a hundred decalogues and a thousand sermons. WM. C. TAIT.

Orthopedic Surgery for Practitioners. By Henry Ling Taylor, M. D., the son of C. Fayette Taylor, M. D., a pioneer in the art. Publishers, D. Appleton & Co., New York and London.

The book, according to the author, "aims to give an outline of the essential facts in regard to deformities and crippling affections for daily use in general practice."

As a handbook, or a compend, from which the student may get an inkling, a little of everything and not much of anything, as is apt to be the case with most text-books, the work excels, but it certainly cannot be considered as a serious attempt to offer the present status of the art of Orthopedics adequately to the thinking and practising surgeon.

Speaking generally it is a good book for students who want to "bone up." It gives, usually, in simple language and in a very easy and graphic style, Orthopedic truths with Delphic statements, which should satisfy any examiner.

Again and again he talks as if faith, buckles and any old vibrator left little to be desired in an Orthopedic Armamentarium.

Knowing a little of Dr. Taylor in his work we hardly think that he does himself justice. He appears most unhappy in his treatment on "Causation," especially regarding the cause of the various arthritic conditions. Admitting that the subject is not thoroughly cleared up, still, the loose treatment accorded to this subject could be much more definite and much more exhaustive in no greater space. The chapter on Poliomyelitis is good and is written in such a manner as to interest the family doctor and put him on his guard against delay and the advent of crippling deformities which follow the waste of time and foolish treatment so widely prevalent; and yet in this section we deprecate the advice given to cut the tendons of intact muscles, in cases of Poliomyelitis, in order to correct deformities, such a method giving only apparent temporary improvement and against the opinions of most conservative Orthopedic surgeons. We do not agree with him that in children, at least, synovial tuberculosis may exist for years without affecting cartilages or bone. Our experience also causes us to

differ in the matter of prognosis of knee-joint tuberculosis, which we think is better on this coast. He objects to early operations in bone tuberculosis unless a definite focal lesion is determined, and in view of some experiences we have had lately, his advice is good and timely. We agree with his experience in the Bier treatment of bone and joint tuberculosis, which coincides with ours.

In clubfoot, with inward rotation of the tibia, he does not mention a plan of correction which we think merits the highest praise, which is to make an osteotomy of the tibia and rotate the lower fragment outward on the perpendicular axis. We have found this maneuvre of the greatest value. He gives, however, many practical suggestions in the care of Scoliotics, and gives a place to Jones' method of treatment of contractures due to ischaemic paralysis.

As a whole the general part is suggestive, and, excepting the tangle on rheumatoid affections, of some value to students of medicine and to the family practitioner. At the end of the book, as a sort of appendage, there is a section on technic, and this is the cream and is really reason for the book. If the rest was lost this alone would be worth the price. There is more meat, more good advice, more happy suggestions on braces and methods and splint-making than we have seen in a long time. It is a joy to read what he says about splints.

Quotation after quotation could be given which should be axiomatic in the mind of every surgeon.

Why a man should waste his time in advocating vibrators and electricity and what not like a patent medicine "ad," when he really knows and can teach so much regarding the great mechanical principles, remains a mystery. S. J. H.

The Renewal of Life. By Thos. Bassett Keyes, M. D. The Tubercle Press Bureau, Chicago, Ill. 1909-1910.

This book of 206 pages is not, as its title implies, an essay in metaphysics or on religion, but a series of arguments for the use of subcutaneous injections of oil "in the cure and prevention of senility and disease; for the making of the acme of abundant health, stamina, vigor, vitality and constitution; for the cure of consumption and other diseases, particularly those of a chronic nature," a treatment which the author calls "the greatest therapeutic advance that has ever been made." According to the author, "oil injected into the tissues enters the circulation in practically the same way as when strained through the intestines; oil thus injected affects the blood cells directly, by feeding them so that they are enabled to grow, both in size and numbers and increase their strength and working powers."

Such assertions are at variance with the results obtained by recent experimental investigations. Henderson and Crofuth[1] showed that "oil injected subcutaneously is readily and widely distributed through the subcutaneous spaces. Such oil, however, is not transformed **in situ** into adipose tissue. In fact, the tissues react to its presence as to any non-irritating foreign substance. In the blood, lymph and milk it does not appear in any detectable amounts. While the oil is ultimately absorbed and utilized in metabolism, the process is one of extreme slowness. Oil injections in any moderate amounts are therefore practically without nutritive value."

Such false premises, coupled with an unpardonable lack of genuine medical knowledge, explain some of the author's extravagant, not to say ridiculous, statements, especially regarding the germicidal action of oil, the relatively small importance of outdoor life in the treatment of pulmonary tuberculosis, and finally the immunity to consumption through the assimilation of fats in sufficient quantities.

The author's portrait occupies the first page of this odd publication from the Tubercle Press Bureau. The last four pages contain references from the well-known Medical Brief and Pacific Medical Journal. D. T.

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1 Yamdell Henderson and Edward F. Crofuth—American Journal of Physiology, Vol. XIV, No. 3, page 193.

A Treatise on the Principles and Practice of Medicine. By Arthur R. Edwards, A. M., M. D., Professor of the Principles and Practice of Medicine and of Clinical Medicine, and Dean of the Faculty in the Northwestern Medical School, Chicago; Attending Physician to Mercy, Wesley Hospitals, etc. Lea & Febiger, New York and Philadelphia, 1909.

It may appear surprising that this work has come to a second edition in such a short time, considering the number of similar standard text-books. But on looking into Edwards' book, the reason of its popularity is immediately apparent. For the practicing physician as well as for the student, it has many commendable features. Particular attention is paid to differential diagnosis, the various disease groups being often tabulated. Treatment is gone over in detail, a feature usually wanting in other works. Numerous plates and engravings illustrate the text. The writer has borrowed freely and wisely from other authors, both as to text and illustrations, and gives us a good, readable, clear exposé of his subject.

It is rather remarkable that in the diagnosis of aneurysms, the X-ray is not mentioned, and that exploratory puncture is spoken of as a means of differentiation from solid tumors. The Wasserman test is not alluded to as an aid to the diagnosis of syphilis.

It is furthermore rather astonishing that none of the recent books mention the fact that while many paratyphoid cases cannot clinically be distinguished from typhoid infections, on the other hand, many cases of acute gastro-enteritis prove to be paratyphoid infections, when investigated bacteriologically. R. B.

Diseases of the Eye. By Chas. H. May, M. D. Publishers, Wm. Wood & Co., New York.

The sixth edition of May's well-known text-book has appeared, and deserves to be well received as it has been heretofore.

As a text-book for students in general medical work, it fills the requirements satisfactorily. The space given to the various divisions of the subject is well balanced, and the whole is concisely and lucidly treated.

There are a few paragraphs which do not express the latest and best line of thought—would mention particularly his treatment of Lachrymal Sac conditions. E. C. S.

Parenthood and Race Culture. By C. W. Saleeby, M. D. Publishers, Moffat, Yard & Co., New York.

To what extent the physician should be interested and study those subjects which are but indirectly a part of his "private practise" is a question which must be determined by himself. We admit that his work is primarily to care for the sick when afflicted with some dread disease; secondarily, he studies hygiene and it would seem that upon this branch the physician of the next generation will place more dependence.

Associated with hygiene and but a step from it is "eugenics," which is the science of race culture, and the first attempts to define its general principles as a whole has been issued in "Parenthood and Race Culture," by Dr. Caleb W. Saleeby (London, 1909). He starts with the basic assumption that "there is no wealth but life" and upon these words of Ruskin develops his subject, emphasizing the importance of heredity and education, the part played by alcohol and tobacco in the production of physical unfitness, and dwelling especially on the possibility of selection through marriage. He would not have us think that the eugenist is only concerned in the production of the physical fit, and in the chapter on "The Selection of Mind" lays stress on the fact that the mind has been the principal means of changing our relative position to our simian forebears.

"Physical eugenics can by no means be ignored; but . . . the physical is of worth only in so far as it serves the psychical and is worse than worthless in so far as it does not." He quotes freely from the words of Francis Galton, who has written so extensively on the subject and gives in detail the books which can be used by those desirous of extending their knowledge. To review a book of this character as it should be done demands an acquaintance with everything it dwells upon, which I do not possess and which ignorance I, no doubt, share with the majority of the profession. However, now that the several states have taken legal action toward the regulation of marriage by forbidding alliances among the criminals, paupers and feeble-minded, and as in Indiana provision is made for the sterilization of its confirmed criminals, imbeciles and rapists, it would seem that the time has come for every physician to study carefully this new science, and as guardians of the public health to spread, as we best of all professions can do, that knowledge which will lend to prolong life and increase human endeavor.

To those of the profession who have but a materialist view of their work the book will not appeal as it has nothing for them, yet, everyone who feels that the limit of human perfection has still to be reached will be deeply interested in its pages and who, with Dr. Saleeby, believe that "there are many events in the womb of time which will be delivered, and the fairest of her sons and daughters are yet to be." G. H. R.

A Text Book of Surgery. George Emerson Brewer, M. D. Lea & Febiger, New York and Philadelphia.

This volume is a fair example of publishers' not infrequent attempts to foster upon unsuspecting students a mass of old material in patched attire. Too much has been added to our knowledge since the first edition of this work to justify the mere adding of a few plates or an occasional page, and we are prone to attribute to the undue haste of incompetent collaborators this second edition. D. T.

APPEAL TO THE MEDICAL PROFESSION OF THE WEST AND SOUTH.

Up to the present time there has not been a concerted effort made to collect and preserve historical data in regard to the origin, evolution and personnel of our profession in this part of our country. The result of this delinquency has been the total loss of much material that should have been preserved, especially pertaining to medical schools and societies, and biographical matter in connection with the practitioners and teachers of medicine of by-gone days. A good deal of material of this character is still obtainable if a systematic effort is made to locate and preserve it. It is in the possession of individuals, families and private libraries and will eventually be lost. The Western Association for the Preservation of Medical Records was organized in May, 1909, for the purpose of collecting the historical and biographical records of the profession of the West and South. We wish to preserve anything and everything pertaining to western medicine and medical men and are anxious to enlist the active help and support of every member of the profession who is in sympathy with our aims. We want every one to become associated and identified with the work of our association. There are no fees or obligations of any kind. We have made arrangements with the Lloyd Library, Cincinnati, O., for the proper housing of the material collected. The latter will be systematically arranged, catalogued and properly preserved, so that it can be made available for research work. We are particularly anxious to obtain:

1. Medical Journals published in the West and South prior to 1880;
2. Medical books and pamphlets written or published in the West;
3. Manuscripts and autographs of early physicians;
4. Old diplomas and other documents of a medical character;
5. Proceedings of medical societies;
6. Reports of hospitals and other medical institutions;
7. Catalogues and announcements of western and southern medical colleges of all "schools";
8. Biographies and portraits of western physicians;
9. Information and material of any kind pertaining to medicine and medical men and affairs in the West and South.
10. Curios of a medico-historical character.

All contributions should be sent in care of the librarian. In view of the fact that we are performing a labor of love and have no funds, our friends will readily understand why all contributions sent by express or freight should be prepaid, so that no expense may accrue to the association. The necessary expenses of the association are at present being met by voluntary contributions of its organizers.

May we not count upon your active help and support? We would like to hear from every member of the profession who is interested in the proposed work.

A. G. DRURY, M. D., Librarian,
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